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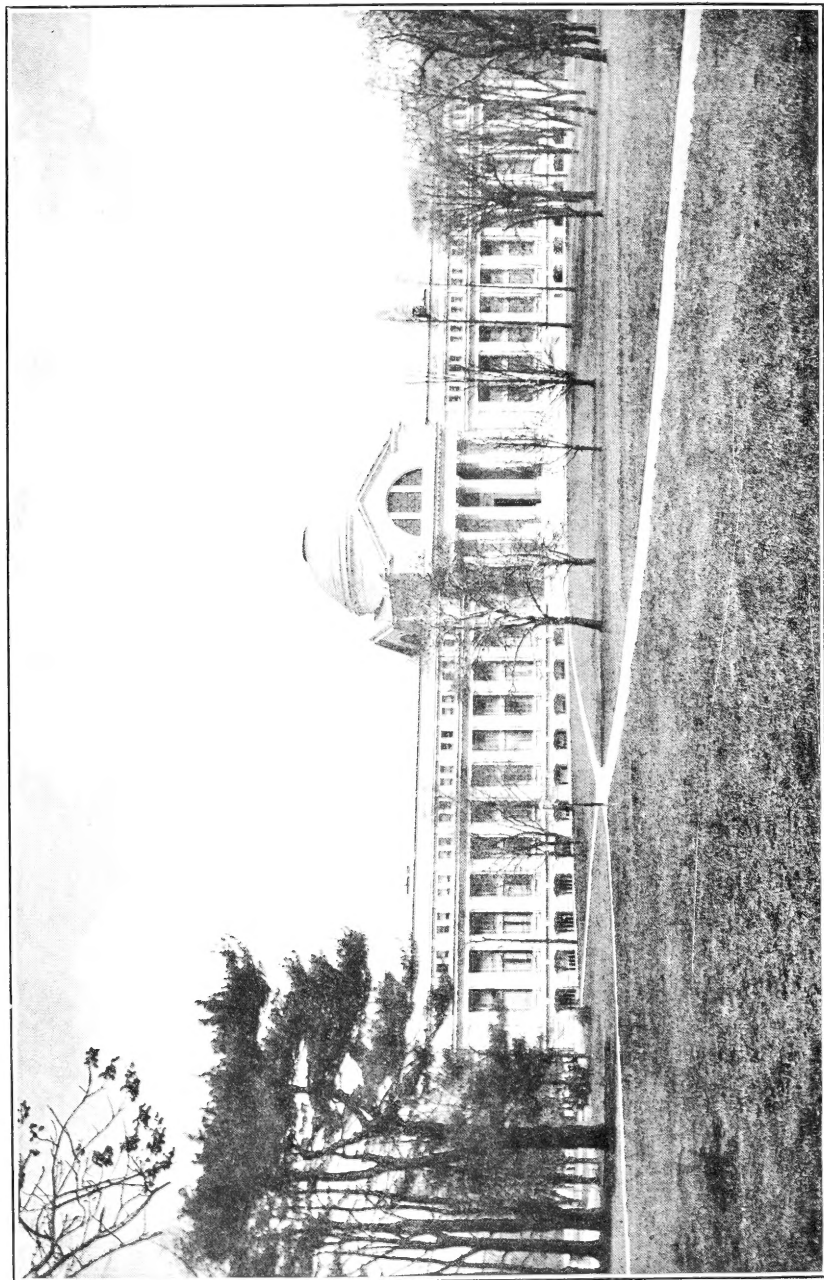












SOUTH FRONT OF NATURAL HISTORY BUILDING, UNITED STATES NATIONAL MUSEUM.



*Catalogued*

*Division of Fishes,  
U. S. National Museum*

SMITHSONIAN INSTITUTION  
UNITED STATES NATIONAL MUSEUM

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REPORT ON THE PROGRESS AND CON-  
DITION OF THE UNITED STATES  
NATIONAL MUSEUM FOR THE  
YEAR ENDING JUNE 30, 1922



WASHINGTON  
GOVERNMENT PRINTING OFFICE  
1922



UNITED STATES NATIONAL MUSEUM,  
UNDER DIRECTION OF THE SMITHSONIAN INSTITUTION,  
*Washington, D. C., October 14, 1922.*

SIR: I have the honor to submit herewith a report upon the present condition of the United States National Museum and upon the work accomplished in its various departments during the fiscal year ending June 30, 1922.

Very respectfully,

WILLIAM DE C. RAVENEL,  
*Administrative Assistant to the Secretary,  
In charge of the United States National Museum.*

DR. CHARLES D. WALCOTT,  
*Secretary, Smithsonian Institution.*



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# STAFF OF THE UNITED STATES NATIONAL MUSEUM.

[June 30, 1922.]

CHARLES D. WALCOTT, Secretary of the Smithsonian Institution, keeper *ex officio*.  
WILLIAM DE C. RAVENEL, Administrative assistant to the Secretary, in charge of the United States National Museum.

## SCIENTIFIC STAFF.

### DEPARTMENT OF ANTHROPOLOGY:

Walter Hough, acting head curator.

*Division of Ethnology:* Walter Hough, curator; M. W. Stirling, aid; J. W. Fewkes, collaborator; Arthur P. Rice, collaborator.

Section of Musical Instruments: Hugo Worch, custodian.

*Division of American Archeology:* Neil M. Judd, curator; R. G. Paine, aid; Philip A. Means, collaborator.

*Division of Old World Archeology:* I. M. Casanowicz, assistant curator.

*Division of Physical Anthropology:* Aleš Hrdlička, curator; P. C. Van Natta, aid.

Associates in Historic Archeology: Paul Haupt, Cyrus Adler.

### DEPARTMENT OF BIOLOGY:

Leonhard Stejneger, head curator; James E. Benedict, assistant curator.

*Division of Mammals:* Gerrit S. Miller, jr., curator.

*Division of Birds:* Robert Ridgway, curator; Charles W. Richmond, associate curator; J. H. Riley, aid; Bradshaw H. Swales, honorary assistant curator; Edward J. Brown, collaborator.

*Division of Reptiles and Batrachians:* Leonhard Stejneger, curator; Doris M. Cochran, aid.

*Division of Fishes:* Barton A. Bean, assistant curator.

*Division of Insects:* L. O. Howard, honorary curator; J. M. Aldrich, associate curator; B. Preston Clark, collaborator.

Section of Hymenoptera: S. A. Rohwer, custodian; W. M. Mann, assistant custodian.

Section of Myriapoda: O. F. Cook, custodian.

Section of Diptera: J. M. Aldrich, in charge; Charles T. Greene, assistant custodian.

Section of Muscoid Diptera: C. H. T. Townsend, custodian.

Section of Coleoptera: E. A. Schwarz, custodian.

Section of Lepidoptera: Harrison G. Dyar, custodian; William Schaus, assistant custodian.

Section of Orthoptera: A. N. Caudell, custodian.

Section of Hemiptera: Edmund H. Gibson, custodian; W. L. McAtee, acting custodian.

Section of Forest Tree Beetles: A. D. Hopkins, custodian.

## DEPARTMENT OF BIOLOGY—Continued.

*Division of Marine Invertebrates*: Waldo L. Schmitt, curator; C. R. Shoemaker, assistant curator; P. S. W. Conger, aid; H. K. Harring, custodian of the rotatoria; Mrs. Harriet Richardson Searle, collaborator; Max M. Ellis, collaborator.

*Division of Mollusks*: William H. Dall, honorary curator; Paul Bartsch, curator; William B. Marshall, assistant curator; Mary Breen, collaborator.

Section of Helminthological Collections: C. W. Stiles, custodian; B. H. Ransom, assistant custodian.

*Division of Echinoderms*: Austin H. Clark, curator.

*Division of Plants (National Herbarium)*: Frederick V. Coville, honorary curator; W. R. Maxon, associate curator; J. N. Rose, associate curator; P. C. Standley, assistant curator; Emery C. Leonard, aid; Ellsworth P. Killip, aid; F. W. Pennell, collaborator.

Section of Grasses: Albert S. Hitchcock, custodian.

Section of Cryptogamic Collections: O. F. Cook, custodian.

Section of Higher Algae: W. T. Swingle, custodian.

Section of Lower Fungi: D. G. Fairchild, custodian.

Sections of Diatoms: Albert Mann, custodian.

Associates in Zoology: C. Hart Merriam, W. L. Abbott, Mary J. Rathbun, David Starr Jordan.

Associate in Botany: John Donnell Smith.

Collaborator in Zoology: Robert Sterling Clark.

## DEPARTMENT OF GEOLOGY:

George P. Merrill, head curator.

*Division of Physical and Chemical Geology (systematic and applied)*: George P. Merrill, curator; E. V. Shannon, assistant curator.

*Division of Mineralogy and Petrology*: F. W. Clarke, honorary curator; W. F. Foshag, assistant curator; Frank L. Hess, custodian of rare metals and rare earths.

*Division of Paleontology*: R. S. Bassler, curator; Charles E. Resser, assistant curator; Jessie G. Beach, aid.

Section of Invertebrate Paleontology: T. W. Stanton, custodian of Mesozoic collection; William H. Dall, associate curator of Cenozoic collection; T. Wayland Vaughan, custodian of Madreporarian corals.

Section of Vertebrate Paleontology: Charles W. Gilmore, associate curator; James W. Gidley, assistant curator of fossil mammals.

Section of Paleobotany: David White, associate curator; F. H. Knowlton, custodian of Mesozoic plants.

Associates in Paleontology: Frank Springer, E. O. Ulrich.

Associate in Petrology: Whitman Cross.

## DEPARTMENT OF ARTS AND INDUSTRIES:

William deC. Ravenel, director.

*Division of Textiles*: Frederick L. Lewton, curator; Mrs. E. W. Rosson, aid.

Section of Wood Technology: William M. N. Watkins, assistant curator.

*Division of Medicine*: Charles Whitebread, assistant curator.

*Divisions of Mineral and Mechanical Technology*: Carl W. Mitman, curator; Paul E. Garber, aid; Chester G. Gilbert, honorary curator of mineral technology; Paul M. Frank, assistant curator of mineral technology; George W. Spier, custodian of watches.



## DEPARTMENT OF ARTS AND INDUSTRIES—Continued.

*Division of Graphic Arts:* R. P. Tolman, assistant curator; Ralph C. Smith, aid.

Section of Photography: A. J. Olmsted, custodian.

*Loeb Collection of Chemical Types:* F. L. Lewton, in charge.

## DIVISION OF HISTORY:

T. T. Belote, curator; Charles Carey, aid; Mrs. C. L. Manning, philatelist.

## ADMINISTRATIVE STAFF.

Chief of correspondence and documents, H. S. Bryant.  
Superintendent of buildings and labor, J. S. Goldsmith.  
Editor, Marcus Benjamin.  
Engineer, C. R. Denmark.  
Disbursing agent, W. I. Adams.  
Photographer, A. J. Olmsted.  
Property clerk, W. A. Knowles.  
Assistant librarian, N. P. Scudder.  
Shipper, L. E. Perry.



# REPORT ON THE PROGRESS AND CONDITION OF THE UNITED STATES NATIONAL MUSEUM FOR THE YEAR ENDING JUNE 30, 1922.

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By WILLIAM DE C. RAVENEL,

*Administrative Assistant to the Secretary,  
In charge of the United States National Museum.*

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## INCEPTION AND HISTORY.

The Congress of the United States in the act of August 10, 1846, founding the Smithsonian Institution recognized that an opportunity was afforded, in carrying out the design of Smithson for the increase and diffusion of knowledge, to provide for the custody of the museum of the Nation. To this new establishment was, therefore, intrusted the care and development of the national collections.

At first the cost of maintaining the museum was paid from the Smithsonian income; then for a time the Government bore a share, but during the past 40 years the Congress has provided for the expenses of the Museum, thus protecting the limited resources of the Institution.

The museum idea was fundamental in the organic act establishing the Smithsonian Institution, which was based upon a 10 years' discussion in the Congress and the advice of the most distinguished scientific men, educators, and intellectual leaders of the Nation of 75 years ago. It is interesting to note how broad and comprehensive were the views which actuated the Congress in determining the scope of the Museum, a fact especially remarkable when it is recalled that at that date no museum of considerable size existed in the United States, and the museums of England and of the Continent of Europe were still to a large extent without a developed plan, although containing many rich collections.

The Congress which passed the act of foundation enumerated as within the scope of the Museum "all objects of art and of foreign and curious research and all objects of natural history, plants, and geological and mineralogical specimens belonging to the United States,"

thus indicating the Museum at the very outset as one of the widest range and at the same time as the Museum of the United States. It was also appreciated that additions would be necessary to the collections then in existence, and provision was made for their increase by the exchange of duplicate specimens, by donations, and by other means.

If the wisdom of Congress in so fully providing for a museum in the Smithsonian law challenges attention, the interpretation put upon this law by the Board of Regents within less than six months from the passage of the act can not but command admiration. In the early part of September, 1846, the Regents began formulating a plan of operations. The report of the committee appointed for this purpose, submitted in December and January following, shows a thorough consideration of the subject in both the spirit and letter of the law. It would seem not out of place to cite here the first pronouncement of the board with reference to the character of the Museum:

"In obedience to the requirements of the charter,<sup>1</sup> which leaves little discretion in regard to the extent of accommodations to be provided, your committee recommend that there be included in the building a museum of liberal size, fitted up to receive the collections destined for the Institution. \* \* \*

"As important as the cabinets of natural history by the charter required to be included in the Museum, your committee regard its ethnological portion, including all collections that may supply items in the physical history of our species, and illustrate the manners, customs, religions, and progressive advance of the various nations of the world; as, for example, collections of skulls, skeletons, portraits, dresses, implements, weapons, idols, antiquities, of the various races of man. \* \* \* In this connexion your committee recommend the passage of resolutions asking the cooperation of certain public functionaries and of the public generally in furtherance of the above objects.

"Your committee are further of opinion that in the Museum, if the funds of the Institution permit, might judiciously be included various series of models illustrating the progress of some of the most useful inventions; such, for example, as the steam engine from its earliest and rudest form to its present most improved state; but this they propose only so far as it may not encroach on ground already covered by the numerous models in the Patent Office.

"Specimens of staple materials, of their gradual manufacture, and of the finished product of manufactures and the arts may also, your committee think, be usefully introduced. This would supply oppor-

<sup>1</sup> Since the Institution was not chartered in a legal sense, but established by Congress, the use of the word "charter" in this connection was not correct.

tunity to examine samples of the best manufactured articles our country affords, and to judge her gradual progress in arts and manufactures. \* \* \*

"The gallery of art, your committee think, should include both paintings and sculpture, as well as engravings and architectural designs; and it is desirable to have in connexion with it one or more studios in which young artists might copy without interruption, being admitted under such regulations as the board may prescribe. Your committee also think that, as the collection of paintings and sculpture will probably accumulate slowly, the room destined for a gallery of art might properly and usefully meanwhile be occupied during the sessions of Congress as an exhibition room for the works of artists generally; and the extent and general usefulness of such an exhibit might probably be increased if an arrangement could be effected with the Academy of Design, the Arts Union, the Artists' Fund Society, and other associations of similar character, so as to concentrate at the metropolis for a certain portion of each winter the best results of talent in the fine arts."

The important points in the foregoing report are (1) that it was the opinion of the Regents that a museum was requisite under the law, Congress having left no discretion in the matter; (2) that ethnology and anthropology, though not specially named, were yet as important subjects as natural history; (3) that the history of the progress of useful inventions and the collection of the raw materials and products of the manufactures and arts should also be provided for; (4) for the gallery of art the committee had models in existence, and they proposed, pending the gathering of art collections, which would of necessity be slow, to provide for loan exhibitions by cooperating with art academies and societies.

In the resolutions which were adopted upon the presentation of the report, a museum was mentioned as "one of the principal modes of executing the act and trust."<sup>2</sup> The work was to go forward as the funds permitted, and, as is well known, the maintenance of the Museum and the library was long ago assumed by Congress, the Institution taking upon itself only so much of the necessary responsibility for the administration of these and subsequent additions to its activities as would weld them into a compact whole, which together form a unique and notable agency for the increase and diffusion of

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<sup>2</sup> *Resolved*, That it is the intention of the act of Congress establishing the Institution, and in accordance with the design of Mr. Smithson, as expressed in his will, that one of the principal modes of executing the act and the trust is the accumulation of collections of specimens and objects of natural history and of elegant art, and the gradual formation of a library of valuable works pertaining to all departments of human knowledge, to the end that a copious storehouse of materials of science, literature, and art may be provided which shall excite and diffuse the love of learning among men, and shall assist the original investigations and efforts of those who may devote themselves to the pursuit of any branch of knowledge.

knowledge, for the direction of research, for cooperation with departments of the Government and with universities and scientific societies in America, and likewise afford a definite correspondent to all scientific institutions and men abroad who seek interchange of views or knowledge with men of science in the United States.

Since that time the only material changes in the scope of the Government museum have been the addition of a department of American history, intended to illustrate by an appropriate assemblage of objects, the lives of distinguished personages, important events, and the domestic life of the country from the colonial period to the present time, and provision for the separate administration of the National Gallery of Art as a coordinate unit under the Smithsonian Institution. From 1906 to 1920 the Gallery was administered as the department of fine arts of the Museum.

The development of the Museum has been greatest in those subjects which the conditions of the past three-quarters of a century have made most fruitful—the natural history, geology, ethnology, and archeology of the United States—supplemented by many collections from other countries. The opportunities for acquisition in these directions have been mainly brought about through the activities of the scientific and economic surveys of the Government, many of which are the direct outgrowths of earlier explorations, stimulated or directed by the Smithsonian Institution. The Centennial Exhibition of 1876 afforded the first great opportunity for establishing a department of the industrial arts, of which the fullest advantage was taken, but the department or gallery of the fine arts made little progress, though not from lack of desire or appreciation, until 1906, when circumstances led to its definite recognition. The historical collections have been greatly augmented within the past few years by large collections illustrative of the World War, including a comprehensive series of aircrafts and their accessories.

While it is the primary duty of a museum to preserve the objects confided to its care, as it is that of a library to preserve its books and manuscripts, yet the importance of public collections rests not upon the mere basis of custodianship nor upon the number of specimens assembled and their money value, but upon the use to which they are put. Judged by this standard, the National Museum may claim to have reached a high state of efficiency. From an educational point of view it is of great value to those persons who are so fortunate as to reside in Washington or who are able to visit the Nation's Capital. In its well-designed cases, in which every detail of structure, appointment, and color is considered, a selection of representative objects is placed on view to the public, all being carefully labeled individually and in groups. The child as well as the adult has been provided for and the kindergarten pupil and the high-school scholar

can be seen here supplementing their class-room occupations or studies. Under authority from Congress the small colleges and higher grades of schools and academies throughout the land, especially in places where museums do not exist, are also being aided in their educational work by sets of duplicate specimens, selected and labeled to meet the needs of both teachers and pupils.

Nor has the elementary or even the higher education been by any means the sole gainer from the work of the Museum. To advance knowledge, to gradually extend the boundaries of learning, has been one of the great tasks to which the Museum, in consonance with the spirit of the Institution, has set itself from the first. Its staff, though chiefly engaged in the duties incident to the care, classification, and labeling of collections in order that they may be accessible to the public and to students, has yet in these operations made important discoveries in every department of the Museum's activities, which have in turn been communicated to other scholars through its numerous publications. But the collections have not been held for the study of the staff nor for the scientific advancement of those belonging to the establishment. Most freely have they been put at the disposal of investigators connected with other institutions, without whose help the record of scientific progress based upon the material in the Museum would have been greatly curtailed. When it is possible to so arrange, the investigator comes to Washington; otherwise such collections as he needs are sent to him, whether he resides in this country or abroad. In this manner practically every prominent specialist throughout the world interested in the subjects here well represented has had some use of the collections and thereby the National Museum has come to be recognized as a conspicuous factor in the advancement of knowledge wherever civilization has a foothold.





## OPERATIONS OF THE YEAR.

### APPROPRIATIONS.

The maintenance of the National Museum for the fiscal year ending June 30, 1922, was provided for by the following amounts appropriated in the sundry civil bill and in a deficiency bill, approved March 4, 1921, and December 15, 1921, respectively :

Preservation of collections.....	\$312, 620
Furniture and fixtures.....	20, 000
Heating and lighting.....	72, 300
Building repairs.....	10, 000
Books.....	2, 000
Postage.....	500
Printing and binding.....	37, 500

In addition to the above a small balance of \$140.54 available from a previous special appropriation for printing and binding brought the total for the year up to \$455,060.54.

As set forth in the report for 1921 the Museum is receiving practically the same appropriations it did 11 years ago, notwithstanding the increased scope of the Museum, the increased collections, and the increased cost of all material and labor necessary to its maintenance. Thus prevented from forging ahead, the National Museum can not long continue to hold its place in the forefront of American museums. That it attains the excellent results recorded from year to year is owing in large measure to the personal qualities of the members of its staff, to whom great credit is due.

Steps were taken this year to unify the business methods of the Government as to the handling of accounts, supplies, traffic matters, etc. In accordance with the provisions of the budget and accounting act of June 10, 1921, a uniform classification of objects of expenditures was prescribed on May 11, 1922, for all executive departments and independent offices of the Government, effective July 1, 1922. This is expected to give uniformity in administrative appropriation and fund accounting and in the analysis of governmental expenditures for the information of the President, the Congress, and such agencies of the Government as are required to deal with governmental expenditures.

## BUILDINGS AND EQUIPMENT.

Shortly after the completion of the Natural History Building, it was noted that the keystone in the east arch of the rotunda was slightly out of place. As years passed the same thing occurred, in lesser degree, in the west arch, and a slight separation appeared in the joints of the balustrade on the fourth story, just below the stone arches. These joints were plastered up from time to time, but, owing to the inaccessibility of the keystones, no steps were taken either to put them back in place or to fill the exposed openings. The condition of these keystones, although not considered dangerous, distinctly marred the appearance of the rotunda. The location of the east keystone continued to change, however, and it was deemed advisable this year to have a thorough investigation made. As the result of two examinations of the dome and the great piers supporting the dome, it was found that the displacement of the stone arches which span the piers, the opening of joints at the ends of the balustrades under these arches, and in the fourth story floor at the ends of the piers have all been brought about by a movement at the end of the piers in a direction away from the center of the rotunda. As there is no indication of movement of the piers in the lower portion of the building, it appears that they have simply leaned outward at the top, doubtless caused by the eccentric application of the weight of the dome. Since the piers are fully braced by a large number of steel beams to the walls of the building and no movement of the outer walls has been observed, it is assumed that the walls are successfully resisting the pressure from the piers and that the movement of the latter will probably not continue much farther, if at all. In the meantime an ingenious method of measuring the exact location of the keystones has been devised, and careful observations will be made at intervals of a few months to determine what, if any, further displacement occurs.

Aside from the usual upkeep, the more important repair work this year in the Natural History Building consisted in the painting of ceilings, side walls, and steel roof trusses in the space between the inner skylights and the roofs of the three main halls; painting all borders in corridors on ground and third story; plastering and pointing up the walls all over the buildings; repainting floors in the two west ranges, ground story, with wood preservative paint; completing and varnishing the cork flooring in the corridors at the east end of the east hall, third story, and painting adjacent floors; installing ventilating ducts and painting ceilings, walls, and floors in four housekeeping rooms; changing ventilating ducts in the engine room; renovating and repainting large doors at the east and west or service entrances; and the painting of all exterior wooden window

frames and sashes on the ground and third stories, including those of the courts.

In the Arts and Industries Building the repairs included the conversion of the second story southeast range into two exhibition halls by the removal of one partition and the construction of another; the painting of seven office rooms and three exhibition halls—the north hall and the two halls in the southeast range, second story; the repairing and refinishing of the oak wainscoting and settees at the main entrance; the construction and erection of two swinging doors at the entrance to the southeast pavilion; repairing of floors, including a beginning on a new composition floor with concrete base in the library; and the completion of the painting of all exterior woodwork of the windows, begun last year.

One Museum office in the Smithsonian Building was painted. The exterior window frames and sashes on the west end of that building and on the Museum portion of the south side were repaired and painted, and one copper down spout renewed. The roof of the South Shed was given a coat of metallic paint, and the roof of the Aircraft Building was placed in thorough order by scraping and repainting with asbestos roof cement paint.

The power plant was not operated during the first two months nor the last month of the fiscal year. During this time electric current was purchased at a slight increase over the rate of the preceding year, under contract made by the Treasury Department. This plan is advantageous in that it gives opportunity to make any needed repairs to the machinery and permits the men to take their leave without the Museum being required to hire others to take their places.

Heat was furnished to the buildings from October 5, 1921, to May 13, 1922, with a consumption of 3,322 tons of bituminous coal. In addition, 21 tons of stove coal were used in the summer for the domestic hot-water purposes. The quantity of coal required this year was appreciably more than last, due chiefly to the fact that it was a much colder winter. The cost of coal varied from \$7.88 to \$6.22 a ton at the close of the fiscal year. Owing to the reduction in the price of coal, the deficiency appropriation of \$2,300 was not used. To this lowering of the price of coal is due the decreased cost of the production of electric current, which was 2.799 cents a kilowatt-hour this year as against over 3 cents during the preceding year, less even than paid during the summer months. This does not mean, however, that the Museum could generate current at this price the entire year, for such is not the case. The total amount of current generated was 389,297 kilowatt-hours.

As a matter of economy, the hot-water heating system of the Natural History Building was extended to the concrete building in the

east court erected by the Treasury Department during the war and afterwards turned over to the Museum. The supposedly temporary nature of the court building at its erection led to the installation of a low-pressure live-steam system, somewhat along the lines of a vapor system, because of the ease with which it could be installed. The new arrangement is more economical and very satisfactory.

The demand for steam in the Freer Building was nearly as great as during the preceding year and the apparatus worked satisfactorily in the main. The hand-operated stokers recently installed in the old boilers in the Arts and Industries Building operated with difficulty during the first part of the winter. The trouble was found, however, to be due to the kind of coal, which was very low in ash, and it had a very low fusing point, the coal being the same as successfully used in the Natural History Building since the installation of the plant. This difficulty was quickly obviated by substituting a high ash coal.

With a view to reducing the expense of keeping the furnaces in repair, the Drake nonlinking furnace blocks purchased during the previous fiscal year were installed in the furnace of one of the boilers in the Natural History Building. These blocks are perforated so that the air moving through a passage between the blocks and furnace walls passes out into the coal bed at numerous points, tending to prevent the formation of clinkers and assisting their removal by making the clinkers brittle. The operation has been so satisfactory that blocks have been purchased to line the furnace walls of two more boilers.

The ice plant was operated for 4,500 hours, producing 310.6 tons of ice at a cost of approximately \$4.06 a ton. The ice machine, which was a very cheap one originally, has been in use for over 10 years and is practically worn out. Ice is furnished to all of the buildings under the Institution in the Mall, and during the 10 years of its existence the machine has saved \$11,000 in the purchase of ice, based on the contract price for ice in the District during that period.

The four passenger elevators in the Natural History Building and the two automatic elevators in the Smithsonian Building were repaired by the installation of new hoist and drum counterweight ropes. Many other minor improvements and changes were made in connection with both the heating and electrical system of the five buildings. The Museum is still having difficulty in getting experienced mechanical help and in retaining the men who prove satisfactory on account of the low wages paid.

During the year 37 exhibition cases and 116 pieces of storage, laboratory, and office furniture were acquired. Of the exhibition cases, 22 were made in the workshop and 15 were acquired from the War Department. Of the storage, laboratory, and office equipment,

20 pieces were purchased and 96 manufactured in the shop. No contracts for the manufacture of cases and other furniture outside of the Museum were made on account of the high cost of labor as compared with the salaries paid by the Museum.

At the close of the fiscal year there were on hand 3,679 exhibition cases, 11,572 pieces of storage, laboratory, office, and other furniture, 47,355 standard unit drawers, 4,712 metal unit drawers, 1,047 wooden unit boxes, 224 wooden double unit boxes, 11,844 standard insect drawers, 752 wing frames, 11,681 special drawers with compo bottoms, and 5,885 special drawers with paper bottoms.

Blue prints of Museum exhibition and storage furniture were supplied individuals connected with the following institutions: The Carnegie Institution of Washington, the Red Cross Museum, Washington, D. C.; the University of Pennsylvania; the Alabama Polytechnic Institute; the Mississippi State College; the Chamber of Commerce, Columbus, Ohio; the Fergus County High School, Lewistown, Mont.; the Eastern High School, Washington, D. C.; the Bureau of Supplies and Accounts of the Navy Department; and the Bureau of the Biological Survey and the Bureau of Entomology of the Department of Agriculture.

#### COLLECTIONS.

The total number of specimens acquired by the Museum during the year was approximately 359,676. Received in 1,899 separate accessions, the specimens were classified and assigned as follows: Anthropology, 6,568; zoology, 220,369; botany, 98,581; geology, 23,504; textiles, woods, medicines, foods, and miscellaneous organic products, 2,792; chemical types, 7; mineral and mechanical technology, 386; graphic arts, 1,014; and history, 6,455.

Additional material to the extent of 995 lots, mainly geological, was received for special examination and report. This determination, without charge, of material, sent in from all parts of the country is of advantage to the Museum in furnishing occasional desirable specimens and records of many new localities. Its economic use was well demonstrated during the World War when the Allies were in urgent need of certain raw material and the Museum, through its department of geology, furnished information concerning localities known to yield the same. Material lent to specialists for study, mainly on behalf of the Museum, amounted to 19,902 specimens.

Some 33,268 specimens were sent out in exchange, for which the Museum received valuable material specially desired for the collections. Also 10,092 specimens were used as gifts to educational establishments, of which 4,691 specimens were contained in regular sets of labeled material previously prepared for shipment and 5,401

specimens in specially selected sets to meet particular needs. The regular sets comprised 30 of rock weathering and soil formation, aggregating 630 specimens; 30 of ores and minerals, aggregating 2,550 specimens; 3 of fossil invertebrates, aggregating 138 specimens; 8 of mollusks, aggregating 1,192 specimens; and 2 of fishes, aggregating 181 specimens. The sendings prepared to meet special needs covered a far wider range of subjects, as follows: Twelve lots of marine invertebrates, aggregating 883 specimens; 6 of mammals, aggregating 240 specimens; 1 of fishes, containing 45 specimens; 5 of birds, aggregating 162 specimens; 7 of insects, aggregating 439 specimens; 3 of mollusks, aggregating 20 specimens; 6 of fossils, aggregating 2,529 specimens; 14 of miscellaneous geological material, aggregating 741 specimens; 2 of archeological specimens and 4 of ethnological material, comprising 151 and 94 specimens, respectively; 32 specimens of physical anthropology, 36 of textiles, and 29 of woods.

Among the important accessions this year the Herbert Ward African collection is unique as portraying in a remarkable manner the native dignity of the African race at the time of Stanley's explorations, before contact with the white race. The final consignment of specimens from the Australian expedition under Mr. Charles M. Hoy, large series of insects from South America and Alaska, and the Otto Buchtien herbarium from Bolivia furnished especially desirable material in the department of biology. Exceptional geological additions included Bolivian tin and tungsten ores, the best examples of carnotite and hewettite thus far found in the United States, new meteoric falls and finds, exhibition specimens of minerals, gems of beauty and value purchased through the Frances Lea Chamberlain Fund, and paleontological material from North and South America, Europe, and Asia, including fragments of the Beresovka mammoth. To the industrial collections were added foreign trade samples of interest in encouraging foreign commerce, American silks and other textiles, specimens illustrating the use of wood pulp and of American walnut, an exhibit of the sixteenth-century method of type making, and models of steam engines and automobiles. Among notable historical accessions mention should be made of flags and relief maps pertaining to the World War and of a number of priceless relics of early statesmen transferred from the State Department.

The collection of old violins, referred to in the preceding report as bequeathed to the Museum under the terms of the will of the late Dwight J. Partello, has been lost to the Museum. It was found to be the property of one of his daughters through a previous bill of sale.

The National Museum in bringing together collections to illustrate the novel and artistic advance made in the various industries is assembling material invaluable for record and research. The economic value of the natural history collections has long been appreciated, and a similar condition is now being recognized in many branches of the industrial arts. As an accepted authority on many varied subjects the Museum is called upon more and more frequently to supply needed data from its vast storehouse for the purpose of assisting the commercial and industrial interests of the country. Industrial workers are helped along many lines, not only by the exhibition collections, the study series, and the publications, but by advice on the particular problem under consideration. The Museum's value to the industrial world as a place of record was well demonstrated during the year, when extensive litigation involving millions of dollars was forestalled, owing to the fact that the Museum was able to show that certain manufactured products had been on exhibition to the public years before the process was patented.

The care and preservation of the collections require a large proportion of the energies and time of the scientific staff and present many difficulties. The classification of the collections, both by members of the staff and by the generous assistance of workers elsewhere, calls for much research work, the results of which are published in part by the Museum.

The reports of the head curators in the natural-history departments and of the curators in the other branches of the Museum, which follow, give in detail the additions to and the work upon the collections during the year.

#### COOPERATIVE EDUCATIONAL WORK.

It has been the aim of the Museum since its organization to assist students in every way possible, not only those who devote their time to scientific subjects, but also the average student, school children, and the general public as well. The exhibits are all designed toward this end, and special efforts have been made in recent years to bring the subjects within the comprehension of every one by simplification of the labels, modifying so far as possible the purely scientific terms, and by the introduction of working models, pictures, diagrams, etc. Supplementing the exhibits are study series of objects, which are always at the service of properly accredited students, and the publications of the Museum, which are supplied without charge to institutions and individuals known to be interested in the subjects treated.

It has been customary, when the collections justified such action, to furnish free of charge to schools and colleges throughout the country materials needed to illustrate their natural history courses.

Duplicate specimens are filed away and, when available in sufficient quantity and suitable variety, are put up into labeled sets ready for distribution. Ores and minerals, rocks, materials illustrating rock weathering and soil formation, fossils, mollusks, marine invertebrates, fishes, and ethnological and archeological objects have mainly been utilized in this way, though other classes of objects have been used to a more limited extent. Special sets are also prepared to meet particular needs. Nor is supposedly waste material discarded, for trimmings from certain specimens are held and utilized for experimental and blowpipe work. Since this system of distribution was adopted, about a million specimens, representing nearly all the subjects of the scientific collections, and approximately 15,000 pounds of bulk material suitable for blowpipe and assay analysis have been thus given to educational establishments.

The public schools of the District of Columbia have long enjoyed the benefits of this custom, consignments of duplicates having been made to them for many years. The recent frequent applications from teachers in the nature departments of these schools for material to illustrate their lessons, with particular reference to the weathering of rocks and soil formation, led to the preparation during the past year of a reference collection comprising 41 varieties of minerals, rocks, and ores useful for teaching purposes. This was placed in a cabinet at the headquarters in the Franklin School Building, so that the needed samples for any particular lesson can be selected by the teacher and readily carried to his own school. Similar material was likewise furnished to the Wilson Normal School for instruction of the pupils in nature work. In addition, teachers are encouraged to bring to the Museum for identification such natural history specimens as the children bring in to them. Nor is this work confined to the public schools only, for as much, if not more, material was sent during the same time to the private schools and universities of the District.

In an effort to have greater advantage taken of the educational facilities afforded by the Museum exhibition halls, arrangements were recently completed with the authorities of the public schools of the District of Columbia whereby, when notified in advance, the Museum furnishes expert guidance by a member of its scientific staff to scholars and teachers visiting the Museum. An increasing number of students has thus been guided through the exhibition halls during the year, not only from the local public schools but also from local universities and private schools and from educational institutions as far distant as Alexandria, Va., and Lackawanna County, Pa.

In some instances the visits to the Museum were only the beginning of further work along the line. For instance, the sixth-grade girl pupils of a number of the Washington public schools



coming to the Museum in groups accompanied by their sewing teacher, and hearing talks by the curator of textiles on important raw fibers and on spinning and weaving, made these trips the subject of compositions after returning to their classrooms.

The members of the staff of the divisions of mineral and mechanical technology not only conducted students through their exhibition halls explaining the exhibits, but talked to District high school students in their classrooms on the Museum's exhibits and activities. The division of mechanical technology has quite a complete series of lantern slides pertaining to its exhibits in transportation, which is being loaned for lecture purposes to individuals known to the Museum.

The anthropological collections were particularly attractive to higher students and were visited by several classes from George Washington University and by the instructors of St. John's College. The class in home economics of the former institution also visited the Museum as a part of their regular work and were given lectures on textiles by the curator in charge. An informal lecture on textiles and pure fabrics legislation by this curator before the Sixteenth Street Heights Club was illustrated with specimens from the Museum. The curator of textiles also gave a talk on the work of the Smithsonian Institution to the library staff of the United States Department of Agriculture.

Through the curator of mollusks, the Museum, assisted by several scientific societies, organized the series of Saturday morning lectures in the Museum auditorium for the honor pupils of the seventh and eighth grades of the public schools, as mentioned elsewhere in this report. The curator of mollusks delivered two of these talks and also lectured on "American Shipworms" before the American Wood Preservers Association, in Chicago, and on "Wonders of the Deep," at the University of Delaware. Scientific lectures on human evolution were delivered by the curator of physical anthropology before the medical students of Georgetown University in the Museum auditorium.

At various times during the year groups of Boy Scouts were conducted through the exhibition halls, particularly those devoted to mineral and mechanical technology, ethnology, Old World archeology, and mammals, and were given talks on the various subjects portrayed.

The value of the Museum to the commercial as well as to the educational interests of the city was again demonstrated this year. A series of lectures on cotton, wool, silk, linen, cloth construction, and ornamentation was given by the curator of textiles at the request of the director of the educational work of Woodward & Lothrop's

department store to several groups of their employees handling textiles, who came to the Museum during business hours for the purpose.

The educational work is not restricted to the immediate vicinity of the Museum. In accordance with the express purpose of the Smithsonian Institution for the "increase and diffusion of knowledge among men," work was begun several years ago by Mr. Chester G. Gilbert, now honorary curator of mineral technology, and Dr. Joseph E. Pogue, formerly of the Museum staff, with a view to promoting a clear understanding of the mineral industries of the United States, especially the fuels. This has been continued by the division of mineral technology, particularly in cooperation with Mr. Samuel S. Wyer, of Columbus, Ohio, who at that time prepared one of the bulletins of the Museum's series on mineral industries—namely, "Natural gas, its production, service, and conservation."

At present the Museum is cooperating with the Pennsylvania State Board of Education in supplying photographs and the essential data of the numerous Museum exhibits pertaining to the mineral industries, which the board of education plans to use in its revised course of geography, to be inaugurated with the beginning of the next school year. A new course devoted to the resources of Pennsylvania will be incorporated in the seventh-grade geography class. A true understanding of the natural-gas industry is one of the parts of this course. In this connection a photographic copy of the Museum's model showing the many phases of the natural-gas industry, together with the descriptive data accompanying this model, has been requested not only from many sources in the State of Pennsylvania, but from other States where natural gas is used. Similarly, copies of the drawing of the Museum's model of the manufactured-gas industry are being requested from educational institutions, associations, and individuals. The Museum bulletins descriptive of these industries, prepared several years ago (Bulletin 102, parts 1-7, and Bulletin 102, vol. 1), were unfortunately completely exhausted very shortly after being issued, and the published data which the Museum is still able to furnish are extremely meager.

The Museum assisted in disseminating information as to foods, as well as to fuels. Early in the year the taxidermists of the Museum prepared and mounted for exhibition a series of specially fed rats, the property of the dairy division of the Bureau of Animal Industry of the Department of Agriculture. This series proved one of the best educational exhibits ever prepared for teaching the food value of milk. As such it was exhibited by the bureau at State fairs and on milk trains in Michigan, Ohio, Virginia, Tennessee, Iowa, North Carolina, and Baltimore, Md.

Incidentally mention should also be made of lectures for use by the Young Men's Christian Association throughout the country and of films for educational moving pictures, prepared within the last few years by members of the scientific staff.

## VISITORS.

The Museum exhibition halls, scattered now in four buildings, were open free to the public as usual on all week days, holidays included, with one exception. All were closed on November 11, 1921, on account of the burial of America's Unknown Soldier. The Natural History Building was open on Sundays from 1.30 to 4.30 p. m., and the Smithsonian Building on the Sundays in April during the same hours.

The number of visitors to the Natural History Building during the year reached 357,321 for week days and 84,283 for Sundays. At the Arts and Industries Building and the Aircraft Building, week days only, the attendance was 262,151 and 46,380, respectively. At the Smithsonian Building it was 82,560 on week days and 824 on the five Sunday afternoons. The slight falling off of visitors to all the buildings, as compared with the preceding year, was due in part to the fact that 1920-21 was inaugural year and in part to the present disturbed economic condition of the country, since the Museum attendance quickly reflects the number of sight-seeing parties in the capital city.

The following tables show, respectively, the visitors for each month of the year, and for each year since 1881, when the building now devoted to arts and industries was first occupied.

*Number of visitors during the year ending June 30, 1922.*

Year and month.	Museum buildings.			Smithsonian Building.
	Arts and Industries.	Natural History.	Aircraft.	
1921.				
July.....	26,330	32,921	4,103	7,886
August.....	38,543	49,715	6,950	12,470
September.....	27,819	38,550	5,703	8,583
October.....	22,990	40,055	4,203	7,115
November.....	17,680	36,624	3,508	5,321
December.....	14,589	27,949	2,965	4,710
1922.				
January.....	11,729	25,895	1,989	3,480
February.....	11,109	24,513	2,194	3,346
March.....	16,139	33,058	2,797	5,359
April.....	28,755	52,373	4,415	10,758
May.....	22,628	40,228	3,678	6,115
June.....	23,840	39,723	3,875	8,241
Total.....	262,151	441,604	46,380	83,384

*Number of visitors to the Museum and Smithsonian Buildings since 1881.*

Year.	Museum buildings.			Smithsonian Building.	Year.	Museum buildings.			Smithsonian Building.
	Arts and Industries.	Natural History.	Aircraft.			Arts and Industries.	Natural History.	Aircraft.	
1881.....	150,000			100,000	1902-3.....	315,307			181,174
1882.....	167,455			152,744	1903-4.....	220,778			143,988
1883.....	202,188			104,823	1904-5.....	235,921			149,380
1884 (half year).....	97,661			45,565	1905-6.....	210,886			149,661
1884-85 (fiscal year).....	205,026			105,993	1906-7.....	210,107			153,591
1885-86.....	174,225			88,960	1907-8.....	299,659			237,182
1886-87.....	216,562			98,552	1908-9.....	245,187			198,054
1887-88.....	249,665			102,863	1909-10.....	228,804	50,403		179,163
1888-89.....	374,843			149,618	1910-11.....	207,010	151,112		167,085
1889-90.....	274,324			120,894	1911-12.....	172,182	281,887		143,134
1890-91.....	286,426			111,669	1912-13.....	173,858	319,806		142,420
1891-92.....	269,825			114,817	1913-14.....	146,533	329,381		102,645
1892-93.....	319,930			174,188	1914-15.....	133,202	321,712		40,324
1893-94.....	195,748			103,910	1915-16.....	146,956	381,228		48,517
1894-95.....	201,744			105,658	1916-17.....	161,700	407,025		86,335
1895-96.....	180,505			103,650	1917-18.....	161,298	401,100		67,224
1896-97.....	229,606			115,709	1918-19.....	266,532	432,859		101,504
1897-98.....	177,254			99,273	1919-20.....	250,982	422,984		86,013
1898-99.....	192,471			116,912	1920-21.....	286,397	467,299	31,235	90,235
1899-1900.....	225,440			133,147	1921-22.....	262,151	441,604	46,380	83,384
1900-01.....	216,556			151,563	Total.....	9,116,792	4,108,400	77,615	5,095,628
1901-2.....	173,888			144,107					

<sup>1</sup> Building open only three months of the year.

## PUBLICATIONS.

The publications of the year comprised 9 volumes and 78 separate papers. The former consisted of the Annual Report of the Museum for 1921; volumes 57, 58, and 59 of the Proceedings; and the following bulletins, namely: No. 100, volume 4, "Contributions to the biology of the Philippine Archipelago and adjacent regions—Foraminifera of the Philippine and adjacent seas," by Joseph A. Cushman; No. 113, "Life histories of North American gulls and terns—Order Longipennes," by Arthur Cleveland Bent; No. 114, "A revision of the king snakes: Genus *Lampropeltis*," by Frank N. Blanchard; No. 118, "Handbook and descriptive catalogue of the collections of gems and precious stones in the United States National Museum," by George P. Merrill, assisted by Margaret W. Moodey and Edgar T. Wherry; and No. 119, "Catalogue of the mechanical engineering collection in the United States National Museum—Motors, locomotives, and self-propelled vehicles," by Carl W. Mitman.

The 78 papers issued separately for prompt distribution to specialists were: Part 2 of volume 1 of Bulletin 82; part 3 of Bulletin 104; two parts of volume 20, one part of volume 22, and one part of volume 24, Contributions from the United States National Herbarium; 25 papers from volume 59, 26 papers from volume 60, and 21 papers from volume 61, Proceedings of the United States National Museum.

The editorial office, in addition to supervising the printing of the Museum publications, has charge of the printing of the many labels

and the miscellaneous printing and binding. Many contributions based on material in the collections of the Museum are printed by other bureaus of the Government and by outside sources. All of the publications above referred to are cited in the list of publications at the back of this report.

The distribution of volumes and separates to libraries and individuals on the regular mailing lists aggregated 83,566 copies, besides 14,240 copies supplied in response to special application. This by no means indicates the number of Museum publications put in circulation during the year, for one of its papers, on the mosquitoes of the country, proved so valuable that the War and Navy Departments arranged through the Superintendent of Documents for further liberal distributions of the paper, and the Bureau of Public Health reprinted it in a large edition.

#### LIBRARY.

A most essential unit in the pursuit of the scientific work of the Museum is its library. At the close of the year this collection of books comprised 60,681 volumes and 95,594 pamphlets, a total of 156,275 titles. The increments of the year were 2,023 volumes and 4,185 pamphlets, received mainly through gifts and exchanges. Aside from gifts from scientific and other institutions and societies, much valuable material was donated by members of the staff of the Museum as in preceding years. The number of books loaned by the library was 11,106, and as many more were consulted without being taken from the buildings.

Funds for the purchase of books and for binding and renovating books were exceedingly limited. It was necessary to confine acquisitions to continuations of series previously begun and publications needed for immediate use in connection with the work of the Museum. The number of books that can be bound in any one year is continually diminishing. This year but 398 books were bound—less than a quarter the number bound five years ago.

Typewritten lists of original articles appearing in scientific periodicals reaching the Institution for the Smithsonian deposit at the Library of Congress have since November been circulated daily among the head curators of the Museum for their information and for dissemination among the staff generally. So popular are these lists that there is a demand from other Government departments and research organizations for copies which the Museum is unable to supply owing to lack of mechanical equipment and assistants. It is regretted that the library is not able to avail itself of this opportunity for rendering more extensive service in the field of scientific bibliography.

## PHOTOGRAPHIC LABORATORY.

In illustrating Museum objects for reproduction in publications and for record purposes and in copying plans, diagrams, etc., required in connection with the work of the Museum, there were made in the photographic laboratory during the year 1,621 negatives, 9,617 black and white prints, 171 cirkut prints, 96 bromide prints, 48 blue prints, 60 fifteen-inch panorams, 238 lantern slides, 24 transparencies, besides developing 914 field negatives and mounting 71 bromides. The increasing demand for lantern slides will require the fitting of a special dark room for that work.

## MEETINGS, CONGRESSES, AND RECEPTIONS.

With limited finances the Museum is unable to inaugurate regular lecture courses, but all governmental agencies and all scientific and educational societies have the free use of its auditorium and the adjacent council rooms for congresses, lectures, and the like. During the year about 150 meetings were held, the lectures and discussions covering a wide range of subjects.

In response to the desire in a simple but dignified manner to acknowledge the debt of our country to the poet, the sixth centenary of the death of Dante Alighieri was observed by a meeting in the Museum auditorium on October 3, 1921, presided over by Hon. Charles E. Hughes, Secretary of State. President Harding, being unable to attend, sent a letter which was read. Addresses on the significance of the great Florentine were delivered by Signor Guido Sabetta, counselor of the Italian Embassy, and by Prof. Charles H. Grandgent, of Harvard University.

Other governmental activities in the auditorium or council rooms included, under the auspices of the Minister of Cuba, an address on that country by Signor Cayetano Quesada, with motion pictures, before diplomatic representatives of Central and South America; under the Department of Agriculture, two sessions of the important National Agricultural Conference called by the President of the United States, a two-day plant quarantine conference arranged by the Federal Horticultural Board, a three-day conference between the United States Forest Service and State forestry officials, three meetings of the employees of the Forest Service, four lectures on economics arranged by the Bureau of Markets and Crop Estimates, and a gathering of the scientific staff of the whole department; under the United States War Department, the graduation exercises of the United States Army Medical School for the year 1921-22; under the United States Treasury Department, Public Health Service, two meetings of the Women's Social Hygiene Council and two other gatherings to view motion pictures; under the United States

Interdepartmental Social Hygiene Board, two motion-picture displays; under the Federal Power Commission, a meeting on water power; and under the American Relief Administration, the National Research Council, and the Children's Bureau of the Department of Labor, a lecture by Dr. Clemens Pirquet, of Vienna, on standards of child nutrition as developed by the American Relief Administration in Austria. A collection of the resolutions of thanks, maps, diagrams, etc., connected with this relief work was exhibited in Rooms 44, 45, and 46 from January 21 to 31, 1922.

The National Academy of Sciences, as usual, held its annual meeting in the Natural History Building, April 24 to 26, 1922, using the auditorium for the scientific sessions, open to the public, and the committee rooms for its business sessions. On the first evening, under the joint auspices of the Carnegie Institution of Washington and the academy, Dr. H. A. Lorentz, of Leiden, lectured on Problems of Modern Physics. This was followed by a reception to Doctor and Mrs. Lorentz in the rotunda and the north and the west halls, first story, which were illuminated and open for inspection. Another feature of the academy meeting of unusual interest was the demonstration, at one of the public sessions, of the loud-speaking telephone, installed on the platform through the courtesy of Dr. F. B. Jewett, of the Western Electric Co.

The American Chemical Society, through the Chemical Society of Washington, arranged a lecture on October 25, 1921, by Dr. E. F. Smith, of the University of Pennsylvania, on early chemistry, with the presentation to the National Museum of a portrait of Joseph Priestley, the discoverer of oxygen, being a copy by Albert Rosenthal of the original by Gilbert Stuart.

The Archaeological Society of Washington, affiliated with the Archaeological Institute of America, was responsible February 18, 1922, for an illustrated lecture on the "Sculpture of Japan," by Dr. Hamilton Bell, curator of the John G. Johnson collection of Philadelphia. This was followed by an informal reception in the public exhibition halls, with a special view of the collection of Chihuahua pottery lent to the Museum by the society, the hostesses being Mrs. Robert Lansing, Miss Mabel Boardman, Mrs. Charles Henry Butler, Mrs. Charles D. Walcott, Mrs. Henry F. Dimock, and Mrs. B. H. Warder.

The National Association of Postmasters of the United States held its twenty-first annual convention in the auditorium October 11 to 13, 1921; the Liberty Calendar Association of America its convention February 7 and 8, 1922; the American Surgical Association its convention, May 1 to 3; and the American Federation of Arts two sessions of its annual May convention, the subject of these sessions being "Industrial art." The National Association of Office Manag-

ers and the International Association for Identification also held one session each in the Museum auditorium during their conventions in Washington this year, the meeting of the latter including motion pictures showing the universal methods of finger printing and of the United States Navy in action.

Other scientific organizations gathering in the Museum included the Anthropological Society of Washington for its annual series of free public meetings, this year 10 in number; the Entomological Society of Washington for its regular monthly meetings from October, 1921, to June, 1922; the Federal Photographic Society of Washington for six meetings; the Wild Flower Preservation Society of America for five Thursday evening lectures; the Audubon Society of the District of Columbia for four meetings; the organizing committee of the Nineteenth International Congress of Americanists for a meeting preliminary to the twentieth congress; the Washington Academy of Sciences, the Philosophical Society, and the Chemical Society of Washington for a joint meeting addressed by Dr. F. W. Aston, of Cambridge, England, on "Electric rays and photographing atoms of mineral." Another joint meeting brought together members of the Audubon Society of the District of Columbia, the Biological Society of Washington, and the Wild Flower Preservation Society of America for an address by Prof. Arthur C. Pillsbury, with motion pictures, some colored, of wild flowers and birds in the Yosemite Park and the Sierras.

Inclement weather on November 14, 1921, necessitated the transfer to the Museum auditorium of the exercises in connection with the laying of the corner stone for the Victory Memorial Building or, as it is better known, the George Washington Memorial Building. The ceremonies were presided over by the Hon. John W. Weeks, Secretary of War, and consisted of an invocation by Right Rev. Alfred Harding, Bishop of Washington; addresses by President Harding, General Pershing, and Admiral Coontz, and benediction by Monsignor C. F. Thomas, of St. Patrick's Church; the audience adjourning then to the site of the building at Sixth and B streets NW., where the corner stone was laid.

Georgetown University had the auditorium for a series of 15 public lectures on international finance arranged by its School of Foreign Service. The topics and speakers were as follows: October 14, "The history of international finance," by Dr. Jacob H. Hollander; October 21, "The organization of international finance," by Dr. William F. Notz; October 28, "Private credit in the United States to-day," by Hon. Oscar T. Crosby; November 4, "The public credit of the United States to-day," by Dr. Ernest L. Bogart; November 18, "The public and the private credit of the nations of western Europe,"



by Col. Alan G. Goldsmith; December 2, "Russia and international finance," by Baron Serge Korff; December 16, "International economy," by Prof. A. E. Zimmern; January 6, "Public and private financial problems of the Far East," by Dr. Stanley K. Hornbeck; January 13, "Public and private credit in Latin America," by Dr. Julius Klein; January 20, "The exchange and depreciated currencies," by Hon. Adolph C. Miller; February 17 and 24, "International competition and our position as a creditor nation" and "Foreign investment and public policy," respectively, by Dr. W. S. Culbertson; March 3, "Shipping in its relation to international finance," by Dr. Emory R. Johnson; and March 31 and May 5, "Reparations and disarmament: Economic factors" and "Reparations and disarmament: Political factors," respectively, by Dr. James Brown Scott.

The School of Medicine, of the same university, here had a lecture on variations of the human body, by Dr. A. Hrdlička. and on another occasion the same lecturer spoke at the request of the American University, his subject being skeletons.

In its effort to raise the standard of the theater by educating the public in understanding and supporting Shakespearian productions, the Shakespeare Society of Washington used the auditorium on five evenings for Shakespearian dramatic and lecture recitals.

Furthering the work of the public schools of the district, the Museum, through the cooperation of the Wild Flower Preservation Society of America, the Audubon Society of the District of Columbia, and the American Forestry Association, arranged six Saturday morning lectures to which the honor pupils of the A and B sections of the seventh and eighth grades in the white public schools of the District of Columbia received a card, these children reporting back to their respective classes on topics discussed, as follows: March 25, "Bird homes about Washington," by Dr. Paul Bartsch; April 1, "Spring flowers," by Mr. P. L. Ricker; April 8, "Our water birds," by Dr. H. C. Oberholser; April 15, "Wild flower gardens for children," by Dr. Edgar T. Wherry; April 29, "Bird baths, boxes, and feeding tables," by Doctor Bartsch; and May 6, "The story of seeds," by Miss Mary Breen. Incidental to the talk of April 29, an exhibition of bird houses made by the pupils of the public schools was arranged. Thirty blue ribbons were awarded by the American Forestry Association. The large number of entries (between 500 and 600) would seem a good indication of growing interest among school children in the welfare of the birds.

In connection with its American citizenship program, the General Federation of Women's Clubs showed the motion picture "The effect of alcohol on man and beast." Other patriotic and miscellaneous meetings included an educational rally of the Women's Committee

of the Federation of Citizens' Associations at the close of their membership campaign; the annual meeting of the Potomac Garden Club; one of the monthly meetings of the Organization of Appointment Clerks; a meeting of the Baird Memorial Committee, to make preliminary arrangements for a memorial to Spencer Fullerton Baird; a meeting of the George Washington Post, No. 1, American Legion; a motion-picture exhibition, "The spirit of '76," before the Matrons and Patrons Association of 1922, Order of the Eastern Star; motion pictures of the tests, at Hammondsport, N. Y., of the Langley flying machine; the four quarterly meetings of the Smithsonian branch of the Federal Employees Union No. 2; the annual meetings of the Smithsonian auxiliary of the District of Columbia Chapter of the American Red Cross and of the Smithsonian Relief Association; and a gathering of the employees of the Smithsonian Institution and all its branches for a talk by Secretary Walcott.

The Associated Tile Manufacturers utilized rooms on the west side of the foyer for an exhibition of American-made tiles from May 16 to June 20, 1922, in connection with meetings held elsewhere in Washington. This exhibition was assembled by the factories at the suggestion of the Washington Chapter of the American Institute of Architects to show the result of 44 years' development of an American industry. The Centennial Exhibition of 1876 furnished the incentive, and the first tile factory was started soon afterwards. All refinements of tile making have been acquired since and the processes so perfected that to-day the United States leads the world in the tile industry.

On the evening of November 23, 1921, the exhibition halls in the Natural History Building were thrown open for a reception by the city of Washington, through the District Commissioners and a committee of citizens, to the delegates of the international Conference on the Limitation of Armament, probably the largest and the most successful affair of its kind ever held in the Museum. About 5,000 persons, representing the official, social, and business life of Washington, showed respect to the delegates of that conference.

Another function, which brought to the Museum representatives of the diplomatic corps of several of the European powers, was the formal presentation to the American Nation, on the afternoon of March 1, of the Herbert Ward collection of sculptures and African ethnology, the gift of his widow in compliance with his expressed wish. An improvised platform placed in the corner of the east-north range, where the Ward collection is installed, served as the center for the ceremony. Here, surrounded by the works of her gifted husband and his unrivaled collection illustrating the handicrafts of the native African, the presentation was made by Mrs. Her-

bert Ward, and the donation was accepted by Vice President Calvin Coolidge, as Chancellor of the Smithsonian.

*Second International Congress of Eugenics.*—On the occasion of this congress, which met in New York City from September 22 to 28, 1921, an exhibit of eugenics and anthropology was brought together for display from September 22 to October 22, 1921, in the American Museum of Natural History. By invitation, the United States National Museum, through Dr. A. Hrdlička, curator of physical anthropology, prepared and sent a special exhibit illustrating "Human variation, inheritance, acquired characteristics, evolution of parts, and reversions," which filled 11 large cases and attracted very favorable attention. Doctor Hrdlička was a member of the general committee of the congress and also one of the speakers.

#### ORGANIZATION AND STAFF.

The organization of the Museum as reported a year ago has undergone but slight change. The Loeb collection of chemical types has been established as an independent entity of the department of arts and industries, under the charge of Mr. F. L. Lewton.

The changes in the scientific staff during the year were likewise not numerous. Mr. Paul M. Frank was appointed assistant curator in the division of mineral technology on November 16, 1921; Mr. Charles Carey, aid in the division of history, on July 13, 1921; Mrs. Catherine L. Manning, philatelist in the same division, on January 3, 1922; Mr. Matthew W. Stirling, aid in the division of ethnology, on September 15, 1921; Mr. Paul S. W. Conger, aid in the division of marine invertebrates, on December 1, 1921; Mr. Ralph C. Smith, aid in the division of graphic arts, on December 5, 1921; and Mr. Paul C. Van Natta, aid in the division of physical anthropology, on December 16, 1921.

Mr. Chester G. Gilbert's title in the division of mineral technology was changed from associate curator to that of honorary curator. Mr. Bradshaw H. Swales, who had been serving as custodian of the section of birds' eggs, was appointed honorary assistant curator in the division of birds. On February 23, 1922, Dr. F. W. Pennell was designated collaborator in the division of plants for the remainder of the calendar year, and on June 12, 1922, Mr. Robert Sterling Clark was made collaborator in zoology for one year. Mr. Neil M. Judd, curator of American archeology, was absent on furlough from July 1 to September 24, 1921, and from May 1, 1922, to the end of the fiscal year, in connection with explorations for the National Geographic Society; and Mr. W. F. Foshag, assistant curator in the division of mineralogy and petrology, was granted furlough from September 1, 1921, to July 15, 1922. Mr. John J.

Desmond was separated from the service of the Museum as lieutenant of the watch on March 23, 1922, under the civil service retirement act.

President Harding authorized the Bureau of Efficiency, on October 24, 1921, to prescribe for all Government departments a uniform system of efficiency ratings of employees and directed the heads of the departments to put the system into effect. Ratings were first to be established for employees engaged in clerical or routine work, such as clerks, stenographers, bookkeepers, messengers, and skilled laborers, and afterwards to be extended to employees engaged in professional, scientific, technical, administrative, or executive work, or any other work involving for the most part original or constructive effort.

The system was inaugurated by a survey of all the positions existing in the Museum on November 15, 1921, carefully prepared and submitted to the Bureau of Efficiency. An initial report on the efficiency of each Museum employee was made, dating May 15, 1922, and similar reports are to be submitted every six months hereafter.

By act of Congress approved June 17, 1922, the provisions of the retirement act of May 22, 1920, were extended to charwomen, laborers, and other employees on a regular annual basis, both classified and unclassified, with basic salary less than \$600 per annum. By Executive order of June 7, 1922, President Harding also covered within this retirement act, effective September 1, 1922, all unclassified employees receiving \$600 or more a year.

The Museum staff lost during the year, by death, Mr. Joseph B. Leavy, philatelist; Mr. Thomas F. Haney, preparator; Mr. A. L. Fant, lieutenant of the watch.

Mr. Joseph B. Leavy, in charge of the collection of postage stamps in the Museum from 1913, died in Georgetown University Hospital, on July 25, 1921, after a lingering illness.

Mr. Leavy, who was born March 7, 1872, was educated at Columbia University, and during his undergraduate years was much interested in athletics, especially rowing. After leaving college he entered into business, in which he continued for several years. He served in the United States Army during the Spanish-American War. As a boy he devoted his time to the collection of postage stamps and became an acknowledged authority on philately. When it became necessary to put the collection of the United States National Museum in proper order, he was called to undertake that work with the title of philatelist. To him credit must be given for the very satisfactory installation of the Government collection, which includes specimens of all new issues sent to the Post Office Department from various foreign Governments.

Mr. Leavy was frequently called upon to act as expert in matters pertaining to his specialty, and he was a frequent contributor to philatelic journals, including a notable paper on the stamps of Belgium. He was also author of a "Catalogue of the postage stamps and stamped envelopes of the United States and possessions issued prior to January 1, 1919," which was published as a bulletin of the Museum (1919).

Mr. Thomas F. Haney, preparator in the division of mineral technology, died suddenly at his home in Washington on October 8, 1921, at the age of 61 years. Mr. Haney's association with the Museum dates from January, 1899, though he had rendered occasional service as early as 1893. When an active beginning was made of the division of mineral technology, in 1913, Mr. Haney was attached to the division as preparator. Had it not been for Mr. Haney's skill, patience, and care, it is doubtful whether the excellent series of industrial models which the division has constructed would have been possible. His death robbed the division of one of its most valuable assets and the staff of a good friend and associate.

Mrs. Julian-James, a long-time friend and for many years an active patroness of the Museum, died in Washington, D. C., on April 11, 1922. Mrs. James's interest in the Museum began 16 years ago in connection with the division of history, to which she then contributed an important collection of family relics. Coincident with the assembling of art textiles sponsored by Mrs. James W. Pinchot in 1908, Mrs. James suggested the formation of a collection illustrating the costumes of different periods, as exemplified by dresses worn by the wives of the Presidents of the United States. This attractive plan was conscientiously carried out by Mrs. James, assisted by Mrs. Rose Gouveneur Hoes, and at her death the collection was nearly complete, forming one of the exhibits most interesting to the public. Mrs. James had inherited much valuable material brought from various parts of the world. Portions of this from time to time she sent to the Museum, and at her death it was found that she had perpetuated her good offices by bequeathing to the Museum all the specimens which had been heretofore deposited as loans.

Members of the Museum staff associated with Mrs. James all bear witness to her energy and enthusiasm. In her long association with the Museum she never failed to help the work in every way possible. She was an exceptional friend and her loss is deeply felt.



## REPORTS ON THE COLLECTIONS.

### REPORT ON THE DEPARTMENT OF ANTHROPOLOGY.

By WALTER HOUGH, *Acting Head Curator.*

#### INTRODUCTION.

The department of anthropology closed a prosperous year in the acquisition of specimens. The customary and special work was carried on with vigor and efficiency on account of the somewhat increased personnel, which permitted a more equitable assignment of duties. The widening scope of anthropology, remarked as an outstanding feature of the present progress of science, was reflected in the work of the several divisions of the department. This was also shown by the nature of the inquiries which came in great numbers from persons wishing information on various subjects. More and more inquiries were made with the view of securing information of a practical nature, as for use in advertising or for other business interests. Informational advertisements are more likely to be read and appreciated by the public. Other inquiries related to special needs or to requests for literature on special lines. In these ways the department found itself carrying on a line of university extension of proved usefulness in a wide field. These features are not cited as novel instances of the work of the Museum, for the Museum is generally recognized as a public institution eager to help in all good causes despite its somewhat limited facilities, but to show its increasing value to the public. This aspect is often lost sight of or not fully appreciated. Anyone who knows the varied, important, and unadvertised work of the Museum will be keen for its support as an indispensable element in the social organization of an enlightened society.

It must be said that a museum which is expected and even required to grow normally must not only utilize all its energies in building all the branches constituting a museum, but must be supplied with means to carry on the work. There must be a constant supply of funds which will take care of the growth of an active living museum.

#### ACCESSIONS DESERVING SPECIAL NOTICE.

The accessions for the most part represent the introduction of a high class of material to the Museum series and some are of the

greatest importance. Pursuing the policy of encouraging gifts and receiving few loans, the work has been simplified and the installation and collections established on a firm basis. Thus in ethnology over 90 per cent of the accessions were gifts, distributed geographically to North, Middle, and South America, 24; Asia, 8; Africa, 7; East India, 2; South Seas, 3; and Europe, 2. Evidently the need for original exploration was never so great, and this is the experience of museums generally.

Announcement was made in the former report of the gift to the National Museum of the Herbert Ward African collection by Mrs. Herbert Ward, carrying out the intentions of her late husband. The collection, received from Paris, was installed in the east north hall of the division of ethnology with the advice and assistance of Mrs. Ward. On the completion of the installment a formal reception was held to signalize the transfer of the collection to the people of the United States. The meeting was presided over by the Vice President of the United States, who said that "this collection is one of the most important ever received by the Smithsonian Institution." Mrs. Ward made an address giving the history of the collection and throwing interesting light on the life work of Herbert Ward as an explorer in Africa with Stanley, as a sculptor, and as a soldier in the World War.

The collection numbers 2,714 specimens, including 9 major and 11 minor sculptures in bronze. It is an ethnologic unit illustrating the life of Kongo natives at a period when they were not affected by outside influences. Toward this work, in which Mr. Ward epitomized the state of primitive man, he devoted intensely the best years of his life. This work terminated on the opening of the World War, in which Mr. Ward gave his life in the service of the Allies.

This unique collection consists of a large series of objects of native handicraft in metal, wood, ivory, horn, and textile, together with natural history specimens. It may be described as an assemblage of African arts illustrated with sculptures depicting the outstanding phases of native life. No other collection of ethnology is illustrated with works of such high artistic merit. In his sculptures Mr. Ward has caught the spirit of the native African and fixed it in bronze. Arranged chronologically, these are as follows: Aruimi Man; A Bakongo Girl; Mask of Negro Girl and Mask of Negro Man; The Charm Doctor; Sleeping Africa; The Fugitives; A Kongo Boy; The Forest Lovers; The Wood Carrier; The Idol Maker; Crouching Woman; Fragment—another study of the Crouching Woman; The Chief of the Tribe; Defiance; A Kongo Artist; The Fire Maker; Distress; and The Head of a Gorilla. Accompanying them is a bronze bust representing Mr. Ward at the age of 27, in the rough



field costume of the African explorer, the work of Sir William Goscombe John.

On the side of primitive metallurgy practiced in Africa, the collection contains a wonderful series of objects proclaiming the African skill in arts and crafts. Assagais, throwing knives, swords, daggers, and other metal objects not only are remarkable examples of aptitude in working iron, copper, and brass, but show a high appreciation of esthetic form and decoration, considered of course with regard to the grade of culture represented by the natives. Some of these works would be regarded as worthy of favorable remark if assigned to any stage of culture. Wood carvings in the Ward collection also present interesting phases of aboriginal art, especially in the representation of the human form and in decorative design. Ivory also, that beautiful and enduring material, is worked into war trumpets, pestles, bark beaters, ornaments, and fetiches of anthropomorphic and animal forms.

While textiles are of limited use in the environment of the tropical Kongo and textile materials here are few and coarse, the specimens shown in the Ward collection indicate the fertile ingenuity of the natives. In this class are baskets, shields, mats, cloth headdresses, etc., appropriately ornamented by texture designs and dyes.

Chief among the natural history collection are a huge elephant head, the skeleton of a gorilla, a python, and other animals of the environment.

Mr. Ward carried out the African art in the designing and ornamenting of the bases of his sculptures.

The whole collection forms a harmonious museum unit and is appropriately installed, both as to setting and arrangement, for which the taste of Mrs. Ward is largely responsible.

It is not too much to say that the installation of the Ward collection represents a high standard of museum achievement.

A large addition to the Eskimo material was seen in the transfer from the Bureau of American Ethnology of the Rev. Sheldon Jackson Alaskan collection, purchased from his daughters, the Misses Jackson. The collection consists of baskets, ivory implements and carvings, needlework, costume, games, etc., numbering 692 specimens, in great part from the Eskimo, with some specimens from the Aleuts and Indians. Doctor Jackson, during his long service in Alaska, had unusual facilities for collecting select objects of native arts and industries, and for this reason the material is acceptable to increase the national collections.

Ten imperial Chinese robes of silk were presented by Maj. Murray Warner, through his widow, Mrs. Gertrude Bass Warner, of Eugene, Oreg. Products of the royal looms, they are regarded as among the finest examples of the textile art. The decoration in-

cludes the symbolic designs of happiness, long life, good fortune, etc., as elements of the wonderful geometric patterns forming the groundwork. Some of the dresses are for summer, and are worked with silver and gold threads in an open fabric.

The Government of Burma, through the lieutenant governor, sent to the Museum a set of 38 gramophone records of the different dialects spoken in that country, prepared in order to preserve information as to the language. The set is one of a few made to be given to the principal countries. This anthropological work is much to be commended.

From the National Museum at Rio de Janeiro, Brazil, was received, as an exchange, a collection numbering 35 specimens of arms, costume, ornaments, a hafted stone ax, etc., from the Nambikuara Indians of the Matto Grosso, a tribe only recently investigated by Brazilian scientists. This acceptable collection was brought to the United States by Miss Bertha Lutz, secretary of the National Museum of Brazil.

A collection of bows, arrows, bark-cloth costumes, jewelry, boat models, weaving tools, and other objects from the Rio Beni tribes in Bolivia, called Gorai, Mositana, Yuricari, and others, was received as a gift from the Mulford Biological Exploration of the Amazon Basin. These specimens are new to the Museum.

Through the courtesy of Arthur R. Fergusson, the curator of ethnology was permitted to make a selection from the large collection of his father, Arthur W. Fergusson, former secretary of the Philippine Commission. The material consists of unusual bolos and kampilans from Cebu and Samar, bident obsidian spears and breast-plate of boar's tusks from Bismarck Archipelago and New Guinea, respectively. This collection is a gift.

The division of American archeology made gratifying progress in bringing its vast collection into a comprehensive unity by a system of indexes which will allow the location of any object to be known in a very short time. Of especial attractiveness and scientific interest is a collection of 500 decorated pottery, stone implements, and beads from ancient habitations in the Casas Grandes district, Mexico, lent by the Archaeological Society of Washington. No group of ancient ceramics in the Museum shows such bright colors, striking designs, and fine finish as this collection.

Other noteworthy accessions were a green jade club from New Zealand, received in exchange from L. C. G. Clarke; 352 specimens from Florida, consisting principally of finely worked shell and coral rock, collected by Charles T. Earle and transferred to the National Museum by the Bureau of American Ethnology; an engraved monolithic stone ax from Georgia, by purchase; an unusually fine banner

stone from Florida, gift of A. C. Schenck, O. E. Offett, and H. M. Alexander; a chunky stone of superior workmanship from Kentucky, transferred from the Bureau of American Ethnology; a carving in catlinite of a buffalo, found in Pennsylvania about 1850, gift of Miss Mary H. Bayly; and 110 stone implements and potsherds from the Susquehanna River, Pa., collected and presented by John L. Baer, who also gave 93 white quartz blades forming part of a cache uncovered in Pennsylvania some years ago.

The most valuable and interesting specimens received in the division of Old World archeology were the ornate statue of Buddha of gilt bronze from the Imperial Palace of Peking, gift of Maj. Murray Warner through his widow, Mrs. Gertrude Bass Warner; and a large wooden statue of Buddha and a Naga shrine from Burma, gift of William Lilly. Mention should also be made, on account of their uniqueness, of two oil paintings of Siberian shamans in their functional outfit, which were secured in an exchange.

The accessions in physical anthropology, from a scientific standpoint, were important. They included six skeletons and skulls from New Mexico, collected by Neil M. Judd, gift of the National Geographic Society; five skeletons and skulls, collected by F. W. Hodge in New Mexico, gift of the Museum of the American Indian (Heye Foundation), New York City; 24 skulls and incomplete skeletons of Indians from mounds in South Dakota, collected by W. E. Myer, transferred from the Bureau of American Ethnology; 10 skulls and also jaws, gift of Calvin S. Brown; 2 Cherokee skulls obtained by the curator through friends at Bristol, Tenn., on a trip to visit bone caves in that region; and a remarkable specimen consisting of an artistic wreath made of the hair of no less than 216 members of one of the old American families, gift of H. E. Howe.

The collection of musical instruments received noteworthy examples of pianos from Hugo Worch, custodian. These specimens were all prepared for installation and placed on exhibit. Especially interesting is a gilt double-bank harpsichord, by Pleyel, of Paris. Mr. Worch's other gifts consisted of a German square piano with overstrung scale, a square piano made by John Seller, Alexandria, Va., in 1810, and an upright piano, of the same date, made by Robert Wornum, London, containing his patent action.

#### EXPLORATIONS AND EXPEDITIONS.

As in former years, this department was much indebted to the Bureau of American Ethnology for the addition of choice objects of material culture. The bureau is really in a position to be the principal and frequent contributor to the anthropological collections, as field work is carried on among the Indians constantly. This source has dwindled through the lack of funds to enable the field workers

to secure objects of material culture. It is self-evident that specimens illustrating the arts and industries of the aborigines are the most valuable evidences of their former conditions and history. To neglect this phase is subversive to science.

In close touch with the department was the exploration of the ancient pueblo, called Bonito, in the Chaco Canyon, N. Mex., by the National Geographic Society, under the direction of Neil M. Judd, curator of American archeology. The first year's work, to a large extent preliminary, will add to the Museum a considerable collection. There were received specimens from the several explorations made possible through the generosity of Dr. W. L. Abbott in Haiti and Australia. The Mulford Biological Exploration of the Amazon Basin brought to the department an acceptable South American Indian collection. These specimens, collected by Dr. W. M. Mann, emphasize the fact that the department is very poor in South American material and that here lies a field urgently calling to be worked. The expedition of the Museum of the American Indian (Heye Foundation) to New Mexico, under the charge of F. W. Hodge, furnished valuable skeletal material. This expedition has furnished specimens to the division from the same region for several years past.

WORK OF PRESERVING AND INSTALLING THE COLLECTIONS—PRESENT CONDITION OF COLLECTIONS.

By constant and careful experiment the curators are seeking to perfect museum methods. The preservation of specimens is an exacting study and requires a large proportion of the energies of the staff. Since articles of an amazing variety are to be handled, their treatment presents an endless succession of problems. For instance, the problem of rust could occupy the whole time of one man. Progress is seen in these lines, and the end of the year finds the collections in better order than ever before.

Not only was sufficient work done to keep the collections in a state as previously, but the curators strove to improve the exhibits in every way possible. To this effect in ethnology the exhibit of the Herbert Ward collection was made to coincide with the recasting of the African collection generally. Also in ethnology minor installations were made. Labeling is a necessary and important feature and was continued, and at present nearly every individual specimen in the collection bears a card of explanation.

Two noteworthy collections were newly installed in the halls of American archeology—a large series of ancient Casas Grande ware, presented by the Archaeological Society of Washington, and a series of prehistoric pottery from ruins in the Mimbres Valley, N. Mex., transferred some years ago by the Bureau of American Eth-

nology. Changes in the public exhibits were necessarily made to admit of the proper installation of these new groups; lesser changes were also made as our efforts to improve exhibits progressed. A considerable number of broken pottery vessels were cleaned, repaired, and renumbered as opportunity offered. During the curator's absence in the field satisfactory progress was made in the consolidation of secondary collections from various States. This imperative work is now about half completed; it is hoped that the remaining collections may receive attention during the present summer. In addition, much time was devoted to the division records, and this very tedious, though important task, after having commanded a large part of our activities during the past 10 years, promises soon to be completed. The condition of the collections remains unchanged since the last annual report was submitted, excepting for such cleaning and repairing as that previously noted. The principal need of the exhibition halls is that of general and individual labels, and present plans, if realized, should find these largely in place two years hence. An interesting collection of bannerstones, showing all degrees of working and valuable as a study of aboriginal stone technology, was put on view.

In the division of Old World archeology the collection illustrative of Buddhism was rearranged and labeled. The assistant curator is preparing a handbook on the prehistoric and historic antiquities of the collection.

In physical anthropology the collections were kept in as serviceable condition as crowding permits; however, until more drawers, exhibition cases, and especially storage space, are supplied, full justice can not be given to the splendid material in the collection. With the rapidly growing collection there follows the need of greater provision for the proper handling, study, and access to the specimens.

In the art textile hall installation was made of a noteworthy collection of varieties of fine European lace and the the type case of laces was refitted and reinstalled.

The ceramic collection was kept in good order and improved by changes in the installation. A case containing typical examples of American art pottery was supplied for the exhibit of the National Gallery of Art. Considerable interest was displayed in the collection of ceramics by visitors. It is regretted that the collection is so poor in many lines.

Among the contributions of the department to other divisions during the year was the preparation and installation of the Monroe and Jackson dresses for the collection of period costumes.

The most valuable adjunct of the department of anthropology is the laboratory. Its services are in constant demand by the divisions

and by other departments. All the working time was occupied in the varied work of modeling, making molds, casting, bronzing, painting, gilding, and making repairs and restorations requiring the best skill.

#### RESEARCH WORK.

Research is sometimes stimulated by inquiries of correspondents. In ethnology various business interests made requests for information needed in advertising. These inquiries were covered by M. W. Stirling, aid, and the studies are of value for more extended research. The curator of ethnology published in the Proceedings a description of the synoptic series of objects in the United States National Museum illustrating the history of inventions and in the Smithsonian Report for 1920 an article on the racial groups and figures in the Natural History Building. As opportunity offered, he continued his investigations on specimens connected with the early history of heating and illumination for a monograph of the subject.

The curator of American archeology, Neil M. Judd, added to the data required for a report on the collections gathered by him for the Bureau of American Ethnology in Utah and Arizona during 1915-1920 and published in the National Geographic Magazine for March, 1922, an article on the Pueblo Bonito Expedition of the National Geographic Society.

In Old World archeology the study of the Parsee, or Zoroastrian, religious tenets and practices was completed, by the assistant curator, Dr. I. M. Casanowicz, and published in the Proceedings, and a study of the archeological collections taken up for the preparation of a catalogue handbook for use of the public.

Active research was continued on various subjects in physical anthropology and attention was given to numerous students desirous of special information. A study of exostoses in the ears of the Peruvian Indians by Beatrice Bickel, Paul C. Van Natta, and the curator, Dr. Aleš Hrdlička, was completed and prepared for publication and will be printed in the American Journal of Physical Anthropology during the year. Measurements were taken of all the Eskimo and Alaskan skulls in the division (besides others) in preparation for the publication of the "Catalogue of measurements of the human crania in the United States National Museum." A series of measurements on the skulls of a number of tribes were made for Prof. Roland B. Dixon, of Harvard University, to aid him with his book on anthropology. A series of investigations was completed by the curator on the teeth and jaws of the Indians and other races in the collection. A part of the results was published in the American Journal of Physical Anthropology and part in the Dental Cosmos.

Various experts studied certain collections of ethnology, among them being George Pepper, Museum of the American Indian (Heye Foundation), New York City, who studied Navaho weavings; L. W. Jenkins, Peabody Museum, Salem, Mass., who examined Polynesian weapons; Ralph Linton, Field Museum of Natural History, Chicago, Ill., worked on Polynesian art and was furnished photographs and catalogue data; Dr. Arnold Van Gennep, Paris, France, conferred on aboriginal designs; Dr. L. H. Dudley Buxton, of Oxford, England, made a general study of the division; Dr. Edward Orton, jr., Columbus, Ohio, received data on cases; Dr. L. A. Barrett and Mr. Wheeler, of the Milwaukee Public Museum, made a protracted study of case furniture and general museum work; Miss Lois Kissell, Teacher's College, Columbia University, studied the aboriginal designs in which the section is so rich for the purpose of training classes in decorative design; and Miss Esther Matchett, School of Education, Cleveland, Ohio, was assisted in selecting material for photographs illustrating the life of the Indian tribes. Much data was furnished correspondents in relation to the Ward collection. Photographs of an Indian peace pipe like those passed on from mouth to mouth during a council were furnished the Bureau of the Public Health Service for use as illustrations of insanitary customs. Photographs of the map of Virginia bearing a representation of Powhatan were furnished the Old Colony Club, Washington, D. C. The Bureau of Biological Survey, Department of Agriculture, was furnished elk teeth for photographing in a film designed to discourage the killing of these animals for their teeth.

#### DISTRIBUTION AND EXCHANGE OF SPECIMENS.

In continuing its valuable educational work in sending out collections of duplicate specimens to schools, the department made a good record. Such collections are prepared with regard to their major value for teaching. They are required to be carefully kept by the recipients and to be used in teaching. In this way their usefulness is maintained at a high standard.

From the division of ethnology a series comprising 35 specimens of basketry, pottery, beadwork, etc., was sent to the Museu Nacional, Rio de Janeiro, Brazil, in exchange for a collection of ethnologica from Indians of that country; and a selection from the Roosevelt collections was forwarded as a gift to the Roosevelt Memorial Association (Inc.), New York City.

Among the distributions of American archeology, a collection of 150 archeological specimens from various localities in Tennessee was presented to the new public museum at Harriman, Tenn.

From physical anthropology 30 human crania were sent as a gift to the Museum of the American Indian (Heye Foundation).

The department sent out 8 gifts, comprising 277 specimens, and 11 exchanges, comprising 153 specimens. The department received 30 lots of diversified specimens for examination and report.

TOTAL NUMBER OF SPECIMENS IN THE DEPARTMENT.

During the year there were received 140 accessions, comprising 6,568 specimens, excluding the Huntington material. Of these, 11 accessions, comprising 1,025 specimens, were loans and deposits.

The total number of specimens received were distributed as follows: Ethnology, 4,389 specimens; American archeology, 1,909 specimens; Old World archeology, 123 specimens; physical anthropology, 60 specimens, excluding the Huntington material; art textile, 79 specimens; musical instruments, 4 specimens; and ceramics, 4 specimens.

The total number of specimens in the department of anthropology on June 30, 1922, omitting the Huntington collection, was 647,594, divided as follows:

	Specimens.
Ethnology-----	156, 253
American archeology-----	423, 290
Old World archeology-----	29, 949
Physical anthropology-----	28, 537
Art textiles-----	1, 424
Musical instruments-----	2, 046
Ceramics-----	6, 095
	<hr/>
Total-----	647, 594



## REPORT ON THE DEPARTMENT OF BIOLOGY.

By GERRIT S. MILLER, JR., *Acting Head Curator.*

COMPARISON OF INCREMENT OF SPECIMENS OF 1921-22 WITH THAT OF 1920-21.

From the numerical standpoint, the collections of this department show less uniform and healthy growth than during the year 1920-21. The actual number of specimens received, 318,950, represents, it is true, an increase over the previous year, but this increase is only 67,437, while the year 1921 showed an increase of no less than 114,720 over its predecessor. The details are given in tabular form below. From this table it is seen that in each collection of vertebrates the increment for the present year was less than the increment during 1920-21, while in each of the other collections the increment was greater than during the preceding year. Just why there should have been this sharp distinction between vertebrates and invertebrates is not clear, but the fact is worth noticing.

Together with the decrease in relative increment has gone a general decrease in the scientific importance of the new accessions. Three curators regard this importance as increased over that of the previous year's accessions, but only one of these (insects) feels called upon to express enthusiasm. Of the six others, five report essentially stationary conditions and one (fishes) a great falling off. In this last instance, however, the decreases in increment and value are both more apparent than real, for the reason that the increment in 1920-21 came chiefly from one collection whose size and value were extraordinary.

In this connection it should again be emphasized that an increase in the number of specimens received means additional demands on the time and labor of the staff and that this means less chance for scientific work—that is, for making the knowledge represented by these collections available to the public—unless additional help can be obtained. In other words, normal growth of the quantity and quality of the accessions requires a normal growth in the scientific staff.

*Tabular statement of the growth of the collection during 1921-1922 as compared with that of previous year.*

Division.	Accessions.			Specimens.			Value.
	Number.	Decrease.	Increase.	Number.	Decrease.	Increase.	
Mammals.....	73	.....	12	2,227	708	.....	No change.
Birds.....	105	.....	39	6,615	9,257	.....	About same.
Reptiles.....	54	.....	10	988	115	.....	Fully equal.
Fishes.....	32	2	.....	1,954	108,576	.....	Far less.
Insects.....	200	.....	16	138,500	.....	108,500	Greatly increased.
Marine invertebrates.	93	.....	23	7,500	.....	2,961	Equal.
Mollusks.....	167	.....	59	59,585	.....	28,918	Do.
Echinoderms.....	12	.....	0	3,000	.....	2,569	Greater.
Plants.....	448	22	.....	98,581	.....	43,145	Do.
Total.....	1,184	24	135	318,950	118,656	186,093	
Decrease.....	.....	.....	24	.....	.....	118,656	
Total net increase.	.....	.....	111	.....	.....	67,437	

ACCESSIONS DESERVING SPECIAL NOTICE, AND WHY.

The great outstanding feature among this year's accessions is the collection of about 100,000 insects of all orders made by Dr. W. M. Mann in South America (chiefly in eastern Bolivia). In Alaska another unusually important collection of insects was obtained by Dr. John M. Aldrich. The final consignment of Mr. Hoy's Australian material, presented by Dr. William L. Abbott and consisting of 354 mammals, 105 birds, and other miscellaneous material, including reptiles, fish, insects, mollusks, and marine invertebrates, brings the important and successful Australian expedition to a close.

*Mammals.*—By far the most important accession in the division of mammals is represented by the shipment of 354 specimens collected in North Queensland and on the island of Tasmania by Charles M. Hoy and presented by Dr. William L. Abbott. With this accession the total number of mammals taken by Mr. Hoy in the Australian region is brought up to 1,179, including especially valuable series of skeletal and embryological material. Other specially valuable accessions are the following: Seventy-seven mammals from southern China, collected by Arthur de C. Sowerby and presented by Robert S. Clark; 25 mammals collected in Africa by H. C. Raven; skins and skulls of a mule deer, a mountain sheep, and the skull of a mountain goat, all collected by Dr. Charles D. Walcott in Alberta, Canada; 2 skins, 2 skeletons, and 4 odd skulls of Virginia deer collected by Arthur J. Poole in New Jersey; 10 skins and skulls of rodents received in exchange from the Museum of Comparative Zoology; a solenodon and 17 bats from the Dominican Republic, collected and presented by Dr. William M. Abbott.

*Birds.*—After having been reported on by Dr. Frank M. Chapman, of the American Museum of Natural History, the collection of 676 bird skins made by Edmund Heller in the Urubamba Valley, Peru,

while attached to the Yale University-National Geographic Society Expedition of 1914-15, has finally been turned over to the National Museum as a gift from the expedition. This material forms the most important individual contribution of birds from Peru ever received by us. It embraces 2 genera and 87 species and subspecies new to the Museum, including the types of 10 new forms described by Doctor Chapman in Museum Bulletin No. 117. B. H. Swales has contributed (under several accessions) 296 skins and some skeletons, nests, and eggs. Among these specimens are representatives of 17 genera and 131 species and subspecies new to our collection. Conspicuous among these additions are two genera of birds of paradise and a skeleton of Darwin's rhea. By the terms of his will the late William Palmer bequeathed the greater part of his collection of birds to the National Museum. This collection is particularly rich in specimens showing change of plumage by molt and in juvenile plumages. It also included two skins of the Carolina parakeet, now nearly extinct, and three specimens of the extinct passenger pigeon obtained in the vicinity of Washington, one of them collected on Rock Creek as recently as the autumn of 1889. Other accessions worthy of mention are 235 skins and 5 nests, collected in Africa by H. C. Raven; 47 specimens from the Dominican Republic, collected and presented by Dr. William L. Abbott; 109 specimens from Australia, collected by Charles M. Hoy and presented by Doctor Abbott; 46 skins collected in southern China by Arthur de C. Sowerby and presented by Robert S. Clark; 163 specimens in alcohol, 131 eggs, and 13 nests, chiefly from Argentina, Chile, Alaska, and British America, transferred from the Department of Agriculture; 25 skins and 22 alcoholic specimens from Samoa, collected and presented by Lieut. Commander Richard C. Reed, U. S. N.; 86 skins from Szechwan, China, collected and presented by David C. Graham; 134 skins from southern California, collected and presented by Edward J. Brown.

*Reptiles and batrachians.*—The Hoy Australian collection, presented by Dr. William L. Abbott, contained 26 specimens. Doctor Abbott also contributed 77 reptiles and batrachians taken by himself in the Dominican Republic. As transfers from the Department of Agriculture were received 6 specimens collected by Dr. Alex. Wetmore in South America, 101 collected by Dr. W. P. Taylor and G. G. Cantwell in Washington State, and 180 taken by F. P. Metcalf and W. F. Kubichek in Minnesota. A transfer from the Bureau of Fisheries, Department of Commerce, consisted of 170 reptiles and batrachians from Lower California collected by Dr. Charles H. Townsend.

*Fishes.*—Only three accessions are mentioned by the curator of fishes as worthy of special comment. These are 500 specimens from

China, many of them representing species new to our collection, taken by Arthur de C. Sowerby and presented by Robert S. Clark; 21 specimens from China, a gift from the National Southeastern University, Nanking, China, through C. Ping; 3 fishes, new to the coast of Uruguay, presented by Florentino Felippone, Montevideo, Uruguay.

*Insects.*—The accessions to the division of insects are characterized by the curator as greatly surpassing in scientific value those “of any previous year for some time back.” This happy condition is chiefly due to the two accessions already mentioned, the one of about 100,000 specimens obtained by Doctor Mann in South America, and the other of about 10,000 obtained by the curator himself in Alaska. The South American collection included all orders; that from Alaska “consisted mainly of Diptera and Hymenoptera, with a fair number of Hemiptera.” Part of the F. J. Dyer collection from Honduras, comprising about 2,700 specimens of all orders, is another noteworthy accession. The Dyer collection “was originally sent to the American Museum of Natural History for mounting, under an arrangement by which we were to receive one-half. This has lately been consummated. The collection is of miscellaneous character, but in part of decided value.” Other important accessions are a named collection of New England Diptera, comprising 390 species received from the Boston Society of Natural History; 1,468 specimens of Indian Hymenoptera, obtained from Col. C. G. Nourse, of London; 512 species of North American Lepidoptera, in part a gift, in part an exchange, from William Barnes, Decatur, Ill.; several lots of mosquitoes from the Canal Zone, in all, about 3,400 specimens, sent by Dr. J. B. Shropshire, sanitary officer at Ancon, Panama; about 1,600 mosquitoes from Doctor Alfaro, San Jose, Costa Rica; Australian insects to the number of 465 received from the Australian Institute of Tropical Medicine, Townsville, North Queensland, through Dr. Gerald F. Hill.

*Marine invertebrates.*—Five accessions are designated by the curator as worthy of particular notice: 1, More than 1,000 microscopic slides of Pacific sponges, as well as the personal slide collection of Dr. R. von Lendenfeld including 71 slides of European sponges; 2, from Dr. J. A. Cushman, Sharon, Mass., 325 slides (1,000 specimens) of foraminifera from the north coast of Jamaica; 3, from Arthur de C. Sowerby (presented by Robert S. Clark), 50 specimens of marine invertebrates, 19 lots of crustacea, and 4 lots of coelenterates, all from China; 4, about 100 specimens of crustacea from Curaçao, West Indies, collected by Dr. C. J. van der Horst, Zoologisch Laboratorium, Amsterdam, Holland (gift); and 5, from Prof. Max M. Ellis, University of Missouri, 350 specimens of cray-

fish and 25 specimens of Apus. Other accessions which deserve mention are a spiny lobster (*Panulirus laevicauda*), the first of its species to be taken in Florida, received in exchange from the American Museum of Natural History; 11 species (109 specimens) of isopods and 3 species (45 specimens) of amphipods new to our collections, received in exchange from Dr. Charles Chilton, Christchurch, New Zealand; 3 specimens of the isopod *Leptanthura laevigata* new to our collections; 1 cotype of *Spirontocaris zebra* from St. Mary's Bay, Nova Scotia, received in exchange from the Biological Board of Canada through A. H. Leim; the largest spiny lobster of which there is authentic record, received as a gift from the Sarasota County, Fla., Chamber of Commerce; one of the largest known specimens of an anomuran crab, *Lopholithodes mandtii*, caught by Bert Arthur Hansen, of Prince Rupert, British Columbia, and presented by E. A. Wakefield; 37 specimens of Maderian crustacea collected and presented by Dr. Adolfo Cesar de Noronha, Funchal, Madeira.

*Mollusks.*—In the division of mollusks the most important accessions have been those purchased with part of the accrued interest of the endowment known as the Frances Lea Chamberlain fund of the Smithsonian Institution. Three of these were small, aggregating only 140 specimens, but they are of special interest as representing material new to the collection. The fourth was the largest and most valuable accession received during the year. It is the part of the Quadras Philippine collection formerly owned by the Chicago Academy of Sciences, and purchased from the academy with part of the income from the Chamberlain fund. The curator of mollusks says of this material: "Quadras was a forester in the Philippine Islands during the Spanish régime, and, next to von Möllendorff, made the largest collection of land mollusks that has ever been brought together from these islands. The Quadras collection was exhibited at the World's Fair in St. Louis, and a set thereof came into the possession of the Chicago Academy of Sciences, the material referred to above. This collection was loaned the National Museum some years ago to assist Doctor Bartsch in monographing the Philippine mollusks. He has already described a large number of new species, the types of which are based upon this material, and many more will follow in course of time. Sr. J. G. Hidalgo, the Spanish authority upon Philippine land shells, reported upon many of Quadras's findings, and the collection now purchased contains topotypes of most of the things handled by Hidalgo. This collection, together with the first series of duplicates from the von Möllendorff collection obtained some years ago by exchange with the Senckenbergische naturforschende Gesellschaft, together with the collections made by Doctor Bartsch on the United States Bureau of Fisheries

steamer *Albatross* Philippine expedition, and many sendings that have come in from time to time from various sources, readily place the collection of the National Museum now way ahead of any other museum as far as Philippiniana are concerned."

Next in value to the collections purchased with the Chamberlain fund is the anatomical material obtained by John B. Henderson in Jamaica. This is of unusual importance, as it was collected with special reference to the needs of the Museum. A particularly interesting accession is represented by 187 slides presented by Dr. E. M. Bluestone, of Mount Sinai Hospital, New York City, showing various stages of development of the malarial parasite. This valuable collection was made by Doctor Bluestone in one of the Army camps during the war. In some instances specimens were taken at stated intervals between chills to show the different stages in the development of the trophozoite in the blood of man. No less than 23 gifts and 1 exchange are further mentioned by the curator as worthy of special notice. While they can not be described here, their mere number indicates a gratifyingly cordial relationship between our division of mollusks and the shell-loving public.

*Echinoderms.*—By transfer from the Bureau of Fisheries, the Museum has received two important collections made by the *Albatross* and in part determined by A. Agassiz, H. L. Clark, and H. Ludwig. Dr. C. J. van der Horst, of Amsterdam, Holland, presented 29 brittle stars from the island of Curaçao, and the curator contributed 6 sea urchins from southeastern Africa.

*Plants.*—The National Herbarium has been increased during the past fiscal year by gifts, exchanges, and purchase of specimens, and by transfer of material from several Government departments, especially the Department of Agriculture. The more important accessions of the year are as follows: 43,843 specimens transferred by the Bureau of Plant Industry, United States Department of Agriculture. These include 33,750 specimens, comprising three-fourths of the Buchtien Herbarium (referred to elsewhere); 6,000 specimens collected by Ivar Tidestrom in the western United States; 2,000 mounted grasses from eastern Asia, collected by A. S. Hitchcock; and 1,327 miscellaneous mounted grasses; 12,500 specimens, largely from tropical America, purchased from Dr. Otto Buchtien, La Paz, Bolivia (these with the 33,750 specimens mentioned above comprise the Buchtien Herbarium purchased jointly by the United States National Museum and the United States Department of Agriculture); 7,000 specimens collected for the Museum by Paul C. Standley in El Salvador, Honduras, and Guatemala (this material represents a full set of the collections made in Central America by Mr. Standley during the last half of the year on behalf of the National Museum,

the Gray Herbarium, the New York Botanical Garden, the Department of Agriculture, and Oakes Ames, Boston, Mass.); 3,970 specimens from the Philippine Islands, Borneo, and Siberia, received as an exchange from the Bureau of Science, Manila; 3,500 specimens from the Dominican Republic, collected by Dr. W. L. Abbott, received as a gift from him; 1,850 specimens, largely from tropical America, received as an exchange from the Universitetets Botaniske Museum, Copenhagen, Denmark (these include many specimens collected in Mexico, Central America, and Brazil); 836 specimens collected in Brazil by G. Gardner, received as an exchange from the British Museum (Natural History), London, England; 1,000 specimens collected in French Guiana by W. E. Broadway in continuation of the plan of cooperative exploration in South America entered into several years ago by the New York Botanical Garden, the Gray Herbarium, and the United States National Museum; 1,252 specimens from tropical America, received as an exchange from the New York Botanical Garden (this material includes a large number of specimens from Trinidad and British Guiana collected under the auspices of the New York Botanical Garden in continuation of the plan of joint cooperative exploration just referred to); 770 specimens from Guatemala, mainly ferns, received as a gift from Harry Johnson, Hynes, Calif.; 742 specimens from Venezuela, received as a gift from H. Pittier, Caracas, Venezuela; 1,568 specimens, mainly from the northeastern United States and Canada, received as an exchange from the Gray Herbarium, Cambridge, Mass.; 453 specimens from Venezuela, received as a gift from Dr. Alfredo Jahn, Caracas, Venezuela; 400 specimens from the French Congo, received as an exchange from the Jardin Botanique de l'État, Brussels, Belgium; 593 specimens of ferns from western Panama, received as a gift from Mrs. L. R. Cornman, San Diego, Calif. (this material is of special value as supplementing several recent large collections from the same region); 573 specimens from the Dominican Republic, received as a gift from J. A. Faris, Santo Domingo, Dominican Republic; 1,000 specimens from El Salvador, received as a gift from the Dirección General de Agricultura, San Salvador, El Salvador, through Dr. Salvador Calderón; 300 specimens from Panama, received as a gift from Brother Heriberto, Panama City, Panama; 600 specimens of cryptogamic plants, comprising centuries 1-6 of the Reliquiae Farlowianae, received as an exchange from the Herbarium and Laboratory of Cryptogamic Botany, Harvard University, Cambridge, Mass.; 295 orchids from the Philippine Islands and 25 illustrations of orchids, received as an exchange from Oakes Ames, Boston, Mass.; 730 specimens from California, received as an exchange from Pomona College, Claremont, Calif.; 422 specimens from California and Mexico,

received as an exchange from the California Academy of Sciences, San Francisco, Calif.; 700 specimens from New York, received as a gift from W. C. Muenscher, Ithaca, N. Y.

EXPLORATIONS AND EXPEDITIONS.

From the standpoint of exploration and expeditions the year just completed shows very little improvement over 1920-21. The number of expeditions contributing material to the department of biology, according to the reports of curators, was 18; of this number no less than 10 were both financed and directed by our outside friends and correspondents, 7 were financed by others and partly or wholly directed by members of our staff, while only 1 was wholly under our control. These facts call for repetition and emphasis of the comments made by the head curator in his 1920-21 report, as follows: "It must be set down as an indisputable proposition that a large museum, and most assuredly one aspiring to be among the leading museums, and, moreover, one representing the richest nation in the world, can not maintain its standing without being able to send out properly planned and properly fitted-out expeditions for the purpose of expanding, supplementing, and completing its collections. Take these away and the institution must infallibly sink down to an humble place among those striving for the purpose of science and the benefit of mankind, and, incidentally, the benefit and glory of the country they represent. The value of a national museum of natural history is not so much in the display it is able to make as in the opportunity for research and exploration. It is not too much to say that for such a museum exploration is the very breath of life. Even in countries impoverished by war, directly or indirectly, an honorable and, let it be said, not altogether vain struggle is being kept up to continue the work of adding to the world's knowledge as circumstances will best permit. If we look back upon the past history of our own institution, is it not clear that the high achievement we have attained and the splendid position we have reached are due in a great measure to the surveys and explorations which have emanated from here and the researches and studies of our men based on the material collected? The reputation of the Smithsonian Institution and its offshoot, the National Museum, it is no exaggeration to say is largely based upon just that kind of work. To live up to that reputation, to keep from sliding down from this enviable position, it will be necessary to find means for future explorations maturely planned and energetically carried out."

The following are some of the more noteworthy of the expeditions which have enriched our collections:

Through the continued generosity of Dr. William L. Abbott, Charles M. Hoy concluded his work of collecting for the Museum



specimens of the very interesting and hitherto poorly represented fauna of Australia. The work was terminated during the winter, and Mr. Hoy returned to the United States in May, 1922. The specimens received during the year from north Queensland and from Tasmania bring the total up to 1,179 mammals, 969 birds, and smaller collections of reptiles, amphibians, insects, marine invertebrates, etc.

On June 15, 1921, Arthur de C. Sowerby sailed for China to resume the work on which he had been engaged for several years until interrupted by the war. The expenses of this work are to be met by Robert S. Clark, who, with great liberality, is presenting all the material collected to the National Museum. This material will consist of chiefly vertebrates, and will be obtained in the south and other parts of China not hitherto represented in the Museum's collections. Actual field work began in the fall of 1921. One shipment of specimens from the Province of Fukien, including 77 mammals and an interesting collection of birds, was received during the fiscal year.

Dr. William M. Abbott visited the Dominican Republic during the winter and spring of 1921-22, generously presenting the results of his work to the Museum. Particular attention was given to collecting plants, of which 3,500 numbers were secured. He also obtained interesting small collections in other branches. In addition to revisiting the region of Samana Bay, Doctor Abbott collected extensively in the Barahona district and in the mountains about San Francisco de Macoris.

One of the most valuable single accessions received during the year was the collection of about 100,000 insects and some miscellaneous material of other kinds, including vertebrates made by Dr. William M. Mann while attached to the Mulford Biological Exploration of the Amazon Basin. This expedition was organized by the H. K. Mulford Co., of Philadelphia, under the direction of Dr. H. H. Rusby, the eminent botanist, chiefly for the purpose of studying drug plants, but also for making general biological collections. By invitation of the expedition, Doctor Mann was attached as entomologist and assistant director. The expedition was in the field about 10 months, during the last three of which Doctor Mann became director on account of the illness of Doctor Rusby. Field work began in Bolivia at the headwaters of the Bopi River and continued down this drainage system to the Amazon with several side trips, the most important of which was to Lake Bogagua in the northern margin of the Pampas.

Doctor Bartsch continued his experiments in heredity which have been carried on for 10 years under the joint auspices of the Smithsonian Institution and the Carnegie Institution of Washington.

The animals used for experimentation are land mollusks of the genus *Cerion*. In this connection he has been working upon a survey of the distribution of the native species in the Florida keys. In this survey he has always used the ordinary method of approaching the keys—that is, by means of a launch—and then examining them for grassy plots, for it is in these that these animals find a suitable habitat. To make sure that all such locations in the keys have been examined and not missed is quite an arduous task, because in many instances the keys are fringed with mangroves, and one would never suspect that grass plots existed in their interior. A survey of this kind, therefore, is a tedious undertaking, requiring a great amount of time. By the use of the seaplane, which the Navy Department was kind enough to detail to him, Doctor Bartsch was able to fly at a low altitude over all the keys from Miami to the Tortugas, over the entire Bay of Florida from West Cape to the eastern limit of the keys, and make notes on and charts of all the grass plots seen. Doctor Bartsch believes that it would have taken a year to have accomplished this by the old method, and they finished it all in a period of four days. Now, it will be possible, by means of the marked charts, to follow up this reconnaissance survey with the actual work of examination without loss of time or danger of missing colonies.

In order to obtain living specimens of the Helicid genus *Thysanophora* for anatomical study toward a proposed monograph of the group, John B. Henderson, a regent of the Smithsonian Institution, made a rather hurried trip to Jamaica to personally collect the necessary material. This little expedition proved unusually successful and of great benefit to the work in hand, as well as to the mollusk collections.

As usual, important material has been received from the Bureau of Fisheries and from the Biological Survey, United States Department of Agriculture, representing the results of work carried on under these branches of the Government.

The National Herbarium has been enriched by the results of two expeditions of first importance. Early in December, 1921, Paul C. Standley, assistant curator in the division of plants, was detailed by the Museum to carry on botanical exploration in Central America, the expenses of the field work being borne mainly by the Gray Herbarium, the New York Botanical Garden, the Bureau of Plant Industry, and Oakes Ames, the latter being especially interested in the orchids of this region. About five months was spent in El Salvador, working from San Salvador as headquarters, where very great assistance was rendered by the staff of the Dirección General de Agricultura. Incidentally a small collection was made on Tigre Island, Honduras. Nearly one month was spent in Guatemala, prin-

cipally in the rich region about Quirigua. Here the United Fruit Co. maintains a well-equipped hospital, which served as an excellent base of operation. The work was expedited in many ways by this company and by the officials of the Ferrocarril Internacional de Centro-America. Altogether over 6,000 numbers were collected, which will be divided among the contributing institutions.

Dr. A. S. Hitchcock, custodian of the grass herbarium, returned in December, 1921, from a collecting trip of eight months in eastern Asia, during which about 2,000 numbers of grasses were collected, mainly in Japan, the Philippine Islands, central and southern China, French Indo-China, and the island of Hainan, lying off the southern coast of China. Special attention was given to the bamboos in assembling material for use in the preparation of a monograph on this group. Particular interest attaches also to the collections secured on Hainan, the flora of this island being nearly unknown.

The expedition alluded to as the only one under the exclusive control of the Museum was a trip to the interior of Alaska, undertaken by Dr. John M. Aldrich, associate curator of insects. In his report he describes this journey as follows: "The Museum paid my expenses and the Alaska Engineering Commission, a branch of the Department of the Interior, furnished me with horses and their subsistence, and with transportation on the Alaskan Railroad. About 10,000 specimens were collected during June and July. They consisted mainly of Diptera and Hymenoptera, with a fair number of Hemiptera. The trip has been described in the year's Smithsonian Exploration pamphlet (Smith's Misc. Coll., vol. 72, No. 15), page 52."

WORK OF PRESERVING AND INSTALLING THE COLLECTIONS—PRESENT CONDITION OF THE COLLECTIONS.

The conditions which have hampered the development of the biological exhibition since the later years of the war and which have been sufficiently described in the last two annual reports continue in full force. It therefore remains impossible to do more than remedy special defects as opportunity presents. A large wall case has been made at the north end of the African section to accommodate the two mounted giraffes and the okapi. It is expected that the placing of the giraffes under glass, where they will no longer be exposed to extremes of temperature conditions, will greatly prolong the life of these valuable specimens. The fine series of Australian mammals collected by Mr. Hoy has made possible a complete renovation of the kangaroo case. Most of the old specimens have been replaced by new ones mounted by Mr. Brown, assisted by Mr. Aschemeier. The wooden bases on which the specimens were formerly placed have been removed, and the substitution of the general sand base for the entire case has made possible an installation

which is more free and less formal, greatly to the improvement of the general appearance. Progress has also been made with adding to and renovating the exhibition series of smaller Australian mammals. These Australian specimens, together with others needed in various parts of the exhibition series, bring the total number mounted during the year up to 21. This total includes a lion mounted by order of the Secretary for the Roosevelt Memorial Association, a specimen on which our taxidermist force cheerfully worked overtime in order to have it ready at the desired date. Practically no progress has been made with renovating, rearranging, or improving other parts of the exhibition series, and, as already explained, no marked improvement will be possible so long as present conditions continue.

Good progress has been made in routine curatorial work on the various collections.

In the division of mammals the most important work of this kind has been the general overhauling of the unmounted larger cetacean material. This very valuable collection had been for many years stored in the basement of the northeast pavilion of the arts and industries building. Later it was brought over to a room next to the taxidermists in the east court of the natural history building. Nothing could be done with it, however, until the past winter, when by putting up two shelves along the east side of the room, each 30 feet long by 3 feet wide, a space was provided where much of the material could be arranged. The entire collection was then overhauled by Mr. Mirguet, who had personal knowledge of many of the specimens, the thick deposit of dust with which the bones had become encrusted was washed off, and each individual bone was legibly numbered by Mr. Poole, with the result that the material is now for the first time in many years in condition to be used. During the year 2 unit, 4 half-unit, and 24 quarter-unit cases have been provided as increased facilities for taking care of the study series of mammals. Twelve of the quarter-units were placed in the attic to help alleviate the overcrowded condition of the large skulls and skeletons; the other cases have been used for skins in the second floor northwest range. Satisfactory work has been accomplished in rearranging those parts of the collection which could be spread into these new cases. Though in general the arrangement is as good as circumstances will permit, the serious overcrowding of the general collection of skins is a menace to the welfare of the collection. This unfavorable condition, which is steadily increasing, can be adequately done away with in no other manner than by the providing of the galleries according to estimates and plans submitted February 21, 1911. Preparatorial work on the study collection has progressed in a very satisfactory manner. A rotary drum for use in tanning

skins has been installed in the taxidermist shop. This apparatus has made it possible to have our tanning done under proper supervision and without submitting our specimens to the risks of a commercial tannery. The advantages from all points of view can scarcely be overestimated. The taxidermists have prepared about 200 skins for study specimens. Our regular force of preparators has cleaned 309 skulls and 85 skeletons, while contract work has resulted in the cleaning of 1,346 skulls and 107 skeletons. Work of this kind is satisfactorily up to date.

During the first half of the year an accurate count of the specimens in the division was made. The results of this count are given in the appended table.

*Specimens of mammals in the United States National Museum proper, January 31, 1922.*

	Total.	North America.	South and Central America; West Indies.	Asia and adjacent islands.	Africa and Madagascar.	Australia and adjacent islands.	Europe.
Monotremata.....	46					46	
Marsupialia.....	1,134	292	225	34		583	
Dermoptera.....	143			143			
Insectivora.....	5,637	2,651	7	954	780		1,245
Chiroptera.....	15,403	9,901	781	3,026	897	146	652
Carnivora.....	6,682	4,501	244	1,037	625	6	269
Pinnipedia.....	1,350	1,267	24	58			1
Lemuroidea.....	176		3	49	124		
Anthroidea.....	1,683	37	216	983	447		
Rodentia (scurine).....	10,336	7,047	144	2,624	247		274
Rodentia (murine).....	25,738	9,306	820	6,717	5,476	181	3,238
Rodentia (miscellaneous).....	1,434	707	376	149	162		40
Lagomorpha.....	2,144	1,577	34	308	70	12	153
Edentata.....	291	86	171	22			
Artiodactyla.....	5,710	2,427	182	1,523	1,518		60
Perissodactyla.....	446	16	57	14	358		1
Sirenia.....	76	24	11	40	1		
Cetacea.....	840	787	7	25	8	4	9
Total.....	79,269	40,626	3,302	17,706	10,725	968	5,942

<sup>1</sup> Introduction.

NOTE.—Grand total, including specimens in Biological Survey, 204,534. There are 1,179 type specimens in the collection of the United States National Museum proper, which are included in the abovelist. Total type specimens, including Biological Survey, 1903.

At the same time the Biological Survey took a census of the mammals under its care, all of which are from North and Middle America, with results as follows:

Summary of mammals entered in catalogue of Biological Survey collection, U. S. National Museum, up to January 15, 1922:

Total number of specimens.....	125,265
Number of type specimens.....	724

The two counts have made it possible to give for the first time a reliable estimate of the actual number of mammals in the National Museum at the close of a fiscal year—a total of no less than 205,201.

In the division of birds 10 quarter-unit cases were rearranged, standard museum labels were written for a large number of skins received during the year, and many case and drawer labels were prepared. Upward of 8,000 eggs were numbered in pencil, but the specimens have not been distributed in the general collection. Satisfactory progress has been made in rearranging the alcoholic collection, and, with the volunteer assistance of Dr. A. Wetmore, in caring for the collection of skeletons. A large number of uncleaned skeletons awaits opportunity for attention by the preparators. The condition of the study series as a whole remains good, though much could be done toward betterment were adequate assistance available.

During this past year about 3,300 reptiles have been installed in permanent places in the storage room. An effort has been made to do away with the obsolete and impractical cork-stoppered bottles, which are so unsuited to a reptile collection, and to substitute instead the standard glass-stoppered jars. For the completion of the task, a very large number of new jars will be required, and as it is seemingly impossible to obtain a sufficiently large number at one time the work of clearing out the obsolete bottles will necessarily be slow. The laborer has finished the annual washing and refilling of all the jars in the storage room. The condition of the collection is at present very good.

The collections of the division of fishes have been carefully examined, the containers refilled where necessary, jars and shelves cleaned, some of the unidentified specimens have been determined, catalogued, carded, and installed in their regular places in the storage. The condition of the material is very good.

The principal improvement in the division of insects during the past year has been in transferring portions of the collection to the tray system from the open style of drawer. Except in Microlepidoptera and Odonata, it is planned to have all the pinned insects in trays as soon as sufficient time can be found for the transfer. Substantial progress has been made in the past year, especially in the Diptera. The usual amount of work on rearranging the older portions of the collection and preparing articles for publications on groups or species of unusual interest has been carried on during the year. In this the division, as usual, has had the active assistance of a large staff of entomologists from the Bureau of Entomology, as well as that of some others. The collection is undoubtedly as a whole in better condition than ever before. Continuous progress is made in adding new insects, describing new species, etc. The installation is as safe as possible from damage by museum pests.

In the division of marine invertebrates the overhauling, filling, and putting in good order of the various lots of material in the alcoholic storage is a time-taking process and one which requires

more assistance than is now available. Sorting and separating of miscellaneous lots of unidentified material has been done, however, as required in connection with its determination. The rearrangement of the entire alcoholic collections undertaken two years ago, when the division of echinoderms was instituted, is still under way. When completed, it will be highly beneficial to both divisions. The present condition of the collection, both dry and alcoholic, is as good as it was last year and perhaps better.

The routine work of caring for the collection of mollusks has made good progress. Rearrangement of the much-discussed American shipworms has been completed, and the specimens are now available for study by persons who are interested in the animals from either the scientific or economic standpoint. It is believed that if opportunity is taken to consult this collection, much of the existing dissension will be overcome and many points of controversy will be settled. Especially satisfactory work has been accomplished in arranging the Hawaiian material and the Japanese material. The importance of this work is indicated by the fact that from both Hawaii and Japan our collections are greater than those in any other museum. The curator reports that "the collections are in splendid shape as far as installation is concerned; the revisional work, an everlasting task, is progressing as rapidly as the time of our limited staff will permit."

The general overhauling of the echinoderm collections begun last year was not continued during the present year, for the reason that it is not practicable to go on with the work until the return of the starfishes now in the hands of Professor Fisher for revision. Considerable progress has been made in transferring specimens from the unidentified collections to the classified series. The present condition of the collection is excellent and better than last year.

Curatorial work connected with the upkeep and increase of the National Herbarium has progressed satisfactorily during the year. Mr. Standley, in the course of his work upon the flora of Central America, has reidentified a considerable number of specimens, and similar important work of revision has been done in several groups, particularly in the composites by Dr. S. F. Blake, the willows by Dr. C. R. Ball, certain leguminous genera by Prof. C. V. Piper, the grasses by Dr. A. S. Hitchcock and Mrs. Agnes Chase, and the ferns by Doctor Maxon. A large amount of material of exceptional value has been received during the year, nearly all of this having been received unmounted. The mounting of this material and its incorporation in the herbarium necessarily involves a very great amount of work. Under the old plan of mounting the specimens exclusively by adhesive plaster progress was so slow that it has been necessary

to substitute, in part, mounting by means of glue, and during the last five and one-half months a laboratory helper has been employed in gluing plants. Altogether 26,000 specimens have been completely mounted and await distribution in the herbarium; this will be accomplished during the present summer if the collections can be spread sufficiently to accommodate this new material. There are on hand at the present time about 12,000 specimens which have been glued but not made ready for the herbarium by strapping. In order that good progress may be made in mounting the accumulation of nearly 50,000 specimens on hand at the present time, special help will be required. The services of a laboratory helper for a part of the next year have been provided for, and a clerk also should be employed in cataloguing this material in order that it may be made available without undue delay. In preparing material for incorporation in the herbarium very great care is being taken to eliminate all specimens which will not be genuinely useful. The segregation of type and duplicate type specimens from the general herbarium has been continued incidentally during the year, and a total of 10,693 specimens has now been distinctively labeled, catalogued, and placed in individual covers, forming the so-called type herbarium. As a preventive measure, the type herbarium has been fumigated several times during the year, and the general herbarium also has been fumigated. The present condition of the herbarium is in general as satisfactory as may be expected considering its crowded condition and the fact that the numerous routine duties of the small staff prevent critical and very desirable work of revision which would otherwise be possible. As in previous years, it has been impossible with our small staff to add to the cryptogamic herbarium material received during the past year and for several years past. Material in these groups is pocketed and made ready for the herbarium as promptly as possible following its receipt and is held ready for incorporation in the herbarium at such time as the services of one or more specialists may be available for this purpose. An assistant curator in charge of the cryptogamic herbarium, or at least an aid, is greatly needed.

#### RESEARCHES FOR THE BENEFIT OF THE MUSEUM.

The staff through its scientific activities has produced the usual amount of research work on the material intrusted to its care. These activities will be briefly enumerated below, the enumeration following the order adopted in last year's report.

Gerrit S. Miller, jr., has been able to devote a considerable amount of time to studies of the cetacea. Three papers are now nearly ready to go to press, one dealing with the whale from Florida presented to the Museum by the Miami Aquarium Association, another on the



generic position of the blue whale, and the third on the morphology of the cetacean skull. A small but important collection of bones from a cave in Haiti was examined and a report on them prepared. He has also brought nearly up to date the manuscript of his "List of North American mammals in the United States National Museum," last published in 1911 and now out of print. As this work is recognized as a standard reference list and the Museum frequently receives applications for it, prompt publication is much to be desired. N. Hollister has completed the study work on the African Artiodactyla, and is now preparing material to be photographed. With the completion of these photographs, the third and last volume of the African report will be ready for publication.

Dr. Robert Ridgway has submitted the following memorandum on his progress with parts 9 and 10 of the Birds of Middle and North America: "Work on Parts 9 and 10 of Bulletin 50 has been on the same lines as that of last year, namely, 'cleaning up' overlooked or deferred books and pamphlets for important citations and writing diagnoses of the higher groups. Much has been done on these lines, though I am bound to confess that not as much has been accomplished as would have been under more favorable circumstances. I am, however, doing the best that I can, and am making substantial progress. In this connection it should be taken into consideration that the amount of labor involved in compiling references becomes greater each year on account of the rapidly increasing literature that has to be examined and culled." Dr. Charles W. Richmond and B. H. Swales made further progress on their report on the birds of Haiti and Santo Domingo, also in the accumulation of data for a proposed catalogue of type specimens of birds in the Museum. J. H. Riley completed the manuscript of a paper on the birds of Celebes based on the collections made by H. C. Raven and presented by Dr. W. L. Abbott. Dr. Leonhard Stejneger has continued his work on the monograph of the turtles of North America. He has also had occasion to review some Bornean snakes in connection with his recent paper on Carl Lumholtz's collection. Miss Doris Cochran has described a new species of agamid lizard from the Malay Peninsula, and in addition has identified a large portion of the previously undetermined material in the division of reptiles and batrachians. Barton A. Bean, in conjunction with Dr. Henry W. Fowler, of the Academy of Natural Sciences of Philadelphia, has examined drawings and other material in connection with the report on the fishes of the Wilkes Exploring Expedition. A paper describing 18 new species contained in the collection has been prepared and submitted for publication.

Dr. J. M. Aldrich, associate curator of insects, has completed a classification of the neotropical genus *Mesembrinella*, a group of large flies that seem to take the place of the blowflies in the tropical parts of the New World. In collaboration with Ray T. Webber, of the Bureau of Entomology, he has almost completed an extensive paper on the Tachinid genus *Phorocera* and its allies. He has also completed several minor papers, part of them now published. The scientific activities of the honorary custodians of the various sections will appear from the appended bibliography.

Dr. Mary J. Rathbun, honorary associate in zoology, has prepared manuscripts for the following reports: On the Brachyura collected by Dr. E. Mjöberg's Swedish Scientific Expeditions to Australia, 1910-1913, which will form one of the series published in the *Kungliga Svenska Vetenskapsakademiens Handlingar*; on the Brachyura collected by Dr. C. J. van der Horst in Curaçao, to be published by the Zoological Society at Amsterdam; on the Brachyura collected in 1911 on a cruise to Lower California by the United States Bureau of Fisheries steamer *Albatross* in collaboration with the American Museum of Natural History, to be published by the American Museum. Of her contemplated series of monographs on American crabs she has nearly completed a second volume on American spider crabs. The first monograph of the series dealt with "The grapsoid crabs of America," and was issued as Bulletin 97, United States National Museum, 1917. In addition, Doctor Rathbun has named the crabs received during the year, of which there have been no small number. The papers prepared by Miss Rathbun and published during the year are listed in the accompanying bibliography. Dr. Waldo L. Schmitt, curator of marine invertebrates, has revised the first part of a report on the Macrura and Anomura of the Australian Museum collected by the *Endeavour*, in the light of certain further and earlier type material later received from the Australian Museum. Work on the Macrura and Anomura of the American Museum Congo Expedition has been carried along, and it is expected that it will be completed during the ensuing year. A bare beginning has been made on the Macrura collected by the Bureau of Fisheries steamer *Albatross* in 1911 in the Gulf of California under the direction of the American Museum of Natural History. C. R. Shoemaker, assistant curator, has in an advanced state of preparation a report on the amphipods of the Cheticamp Expedition in the Gulf of St. Lawrence. Dr. Harriet Richardson Searle has given some time in continuation of her studies on the Isopoda. She is at present preparing a report on the isopods collected by the *Albatross* in the Gulf of California in 1911, to be published by the American Museum of Natural History. Her report on the terrestrial Isopoda collected in Java by Dr. Edward Jacobson

appeared during the year. Prof. Max M. Ellis, of the University of Missouri, collaborator, is at present working up a report upon a cross-continent section of the North American Discodrilid fauna, a study based upon several thousand specimens collected by himself from 25 different localities between Indiana and the Yellowstone National Park. Doctor Ellis has promised a first set of these worms, including types, to the Museum. Two reports, the result of the labors of Harry K. Harring, custodian of the Rotatoria, have been published during the year, the first dealing with the Rotatoria of the Canadian Arctic Expedition, and the other, in collaboration with Frank J. Myers, being a first part of a report on the rotifers of Wisconsin. Work upon the second part of the latter report is being continued.

Dr. William H. Dall has monographed the marine shell-bearing mollusks of the Hawaiian Islands, a work which, unless new material comes in, has been completed except for part of the figures. John B. Henderson has studied the Turritidae of the western Atlantic with a view to publishing a monograph of this group. He has also worked on a monograph of the Antillean land and fresh-water mollusks, a list of the mollusks collected by the Barbados-Antigua expedition of the State University of Iowa, and (in conjunction with Doctor Bartsch) on the mollusk fauna of the vicinity of Beaufort, N. C. Doctor Bartsch has completed a monograph of the American ship-worms, to be published as Museum Bulletin No. 122. It is hoped that this bulletin will be of assistance to engineers and water-front property owners and of interest to scientists in general. Some progress has been made on special groups of African, Philippine, Middle American, and Antillean mollusks, and with Mr. Henderson on the mollusk fauna of the Beaufort region. Doctor Bartsch's experiments in heredity were continued at the Marine Biological Laboratory of the Carnegie Institution at the Tortugas, Fla. This work is described in a paper entitled "Cerion Breeding Experiments," which will be published in the Smithsonian Exploration Pamphlet. William B. Marshall, apart from his very exacting routine duties, has found time to complete an investigation of the mollusks of the genus *Corbicula* of South America. He has also completed a paper on two new Diplodons of Uruguay and has continued his studies of the South American fresh-water mussels.

Austin H. Clark has prepared reports on the brittle stars of Curaçao, on the echinoderms of the Cheticamp Expedition, 1917, and on the echinoderms collected by Frits Johansen in James and Hudson Bays in the summer of 1920. He continued work on the Ingolf report and on part 3 of Bulletin No. 82, both of which are nearing completion.

In the division of plants the following special investigations were begun, continued, or completed during the year: Dr. Frederick V. Coville has continued his studies in breeding and propagating the blueberries (*Vaccinium*) and has made frequent use of the herbarium as heretofore. Dr. J. N. Rose has continued his studies of the Cactaceae, in collaboration with Dr. N. L. Britton, director in chief of the New York Botanical Garden, work which has been under way since 1911 under the auspices of the Carnegie Institution of Washington. Volume 3 of *The Cactaceae* will probably appear in July, 1922. The manuscript of volume 4 has been submitted for publication. Doctor Rose has continued also his studies of Ecuadorian plants referred to in recent reports. Dr. William R. Maxon has continued his studies of the pteridophyta, giving particular attention to several large collections from Central America, the West Indies, and tropical South America. Several short papers have been published, but no new work other than that of identifications has been undertaken. Paul C. Standley has continued the preparation of a synoptical account of the flora of Central America and Panama, and has spent six months in field work in Salvador, Honduras, and Guatemala, collecting material for use in this connection. He has begun the preparation of a list of the Salvador plants to be published in *El Salvador*. The *Flora of Alaska* and the *Flora of Glacier National Park*, mentioned in previous reports as completed, have not as yet been published. Ellsworth P. Killip has continued his studies of the genus *Passiflora* and has published descriptions of a number of new species of this genus from Mexico and Central America. Emery C. Leonard has practically completed his study of the genus *Scutellaria* and has continued his study of the plants collected by himself and Dr. W. L. Abbott in Hispaniola.

Dr. O. P. Hay, of the Carnegie Institution, has made constant use of the collections in connection with his work on the Pleistocene fauna of North America. Remington Kellogg examined cetacean and other material in connection with his studies of fossils. Charles Sheldon has made a beginning at overhauling the collection of mountain sheep. H. E. Ewing, of the division of entomology, has collected parasites from the skins in the division of mammals. Dr. H. C. Oberholser, of the Biological Survey, continued his determination of Malayan and other birds. Dr. A. Wetmore, also of the Biological Survey, spent much time on the collection of bird skeletons. A. C. Bent, Taunton, Mass., devoted two days to examining various eggs and birds in connection with the "Life Histories" on which he is engaged. The thanks of the Museum are due to Dr. Frank M. Chapman, W. E. Clyde Todd, Dr. John C. Phillips, and Dudley Le Souef for the determination of material (birds) and the sup-

plying of important data. In the division of reptiles and batrachians Dr. O. P. Hay and C. W. Gilmore have examined skeletons in connection with studies of fossils; Remington Kellogg has continued his work on an economic and systematic study of the toads; Dr. G. K. Noble has paid special attention to the frogs of the Dominican Republic and has borrowed some of our material; K. P. Schmidt has written some interesting reports on the herpetology of Lower California, making use of our collections; A. I. Ortenburger has identified snakes, and Dr. E. R. Dunn has identified salamanders. Dr. Henry W. Fowler has cooperated with Mr. Bean in preparing a report on the fishes of the Wilkes Exploring Expedition.

The division of insects has once more been particularly fortunate in the number of persons who have added to the value of the collection by examining specimens. Most of this material has been studied here. The following names may be mentioned in this connection: Ray T. Webber, Melrose Highlands, Mass.; Prof. H. B. Hungerford, Lawrence, Kans.; S. E. Cassino and L. B. Swett, Salem, Mass.; Alfred M. Emmerson, Pittsburgh, Pa.; George M. Greene, Philadelphia, Pa.; M. W. Blackman, Syracuse University, Syracuse, N. Y.; H. C. Hockett, L. S. West, and Prof. J. Chester Bradley, all of Cornell University; L. H. Taylor, Bussey Institution, Forest Hills, Mass.; S. W. Bromley and Prof. G. C. Crampton, Amherst, Mass.; Dr. A. H. Sturtevant, Columbia University; William Barnes and A. W. Lindsay, Decatur, Ill.; Prof. E. T. Owen, Madison, Wis.; Prof. T. D. A. Cockerell, Boulder, Colo.; J. R. Malloch, Biological Survey; H. J. Reinhard, College Station, Tex.; Dr. J. Villeneuve, Rambouillet, France; J. A. G. Rehn, Academy of Natural Sciences, Philadelphia; Morgan Hebard, Philadelphia; and G. F. Ferris, Stanford University.

In marine invertebrates the Museum has continued to receive very valuable aid from its so-called "volunteer staff," that is, from specialists to whom we have sent material on which we have had no specialist working here. To these collaborators the Museum is under great obligation. Their names follow: Dr. Henry B. Bigelow and Dr. R. V. Chamberlin, Museum of Comparative Zoology; Dr. K. H. Barnard, South African Museum; Dr. L. R. Cary, Princeton University; Dr. Leon J. Cole, University of Wisconsin; Dr. Henri Coutière, École Supérieure de Pharmacie, Paris, France; Dr. Joseph A. Cushman, Boston Society of Natural History; A. A. Doolittle, Washington, D. C.; Prof. Max M. Ellis, University of Missouri; Dr. A. G. Huntsman, University of Toronto; Frits Johansen, Ottawa, Canada; T. Kaburaki, Science College, Tokyo, Japan; Dr. C. D. Marsh, United States Bureau of Animal Industry; Dr. Maynard M. Metcalf, Oberlin, Ohio; Dr. J. Percy Moore and Dr. Henry A.

Pilsbry, Academy of Natural Sciences, Philadelphia, Pa.; Dr. Charles C. Nutting, State University, Iowa; Dr. Raymond C. Osburn, Ohio State University; Prof. F. Payne, University of Indiana; Capt. F. A. Potts, Cambridge, England; Prof. Frank Smith, University of Illinois; Dr. W. M. Tattersall, Victoria University, Manchester, England; Dr. Aaron L. Treadwell, Vassar College; Dr. Willard G. van Name, American Museum of Natural History; and Dr. C. B. Wilson, Westfield, Mass.

The division of mollusks has been visited by the following persons, whose work, though primarily directed by outside interests, has resulted in much benefit to the Museum: Dr. C. W. Cooke, Dr. W. P. Woodring, Dr. Julia A. Gardner, W. C. Mansfield, all of the United States Geological Survey; Prof. T. D. A. Cockerell, University of Colorado; Charles T. Simpson, Little River, Fla.; Calvin C. Goodrich, Detroit, Mich.; Mr. and Mrs. W. H. Golish, Southwest Museum, Los Angeles, Calif.; Dr. G. Dallas Hanna, California Academy of Sciences; Dr. William G. Vinal, Providence, R. I.; Dr. R. W. Shufeldt, Washington, D. C.; Dr. C. Montague Cooke, Bishop Museum, Honolulu, Hawaii; Dr. Frank Potts, Cambridge University, England; J. Edward Hoffmeister, Johns Hopkins University. The same division is indebted for help in various ways to the Navy Department for detailing a sea plane for Doctor Bartsch's use in Florida, and to the following individuals for important assistance in various directions: Dr. J. W. Martin, Kirksville, Mo.; Dr. E. M. Bluestone, New York City; Dr. Maurice Cossmann, Paris; Dr. F. Haas, Frankfort on the Main; Guy Robson, London; Dr. H. A. Pilsbry, Philadelphia; Prof. Joh. Thiele, Berlin; C. J. Maynard, West Newton, Mass.; T. G. Townsend, New York City; the American Wood Preservers' Association (particularly A. M. Taylor, Port Reading, N. J., the former president); Dr. George A. Soper, New York City; Dr. E. M. Kindle, Ottawa; the Provincial Museum, Halifax; James Zetek, Ancon, Panama; A. Reyne, Paramaribo, Dutch Guiana; A. B. Hilsley, Charlotte, N. C.; Bureau of Chemistry, United States Department of Agriculture. In the division of echinoderms investigations have been carried on by Prof. Walter K. Fisher, of Hopkins Marine Station, Pacific Grove, Calif. (North Pacific starfishes), and Prof. Hiroshi Oshima, Department of Agriculture, Kyushin Imperial University, Fukuoka, Japan (holothurians). Echinoderms transferred from the Bureau of Fisheries had been determined by Alexander Agassiz, Hubert Ludwig, and Hubert Lyman Clark. Among the professional botanists from elsewhere than Washington who have worked in the herbarium during the year are the following: Dr. B. L. Robinson, curator of the Gray Herbarium, Cambridge, Mass.; Dr. Francis W. Pennell, Academy of Natural Sciences, Philadelphia; Dr. J. H. Barnhart, of the New

York Botanical Garden, New York City; and C. A. Weatherby, East Hartford, Conn.

The usual large number of specimens was asked for as loans by outside investigators and institutions as an aid in the study of their own material. Mammals were lent to the American Museum of Natural History, New York City (for use of H. E. Anthony, Childs Frick, and Herbert Lang); Melville A. Carpenter, Newark, N. J.; Dr. H. C. Cooper, Abercrombie, N. Dak.; A. B. Howell, Pasadena, Calif.; Dr. R. W. Shufeldt, Washington, D. C.; Southern Branch, University of California, Los Angeles; University of California, Berkeley. Birds were sent to the American Museum of Natural History (for use of James P. Chapin, Dr. Frank M. Chapman, Dr. Jonathan Dwight, Ludlow Griscom, and Dr. R. C. Murphy); Frank Bond, Washington, D. C.; Carnegie Museum, Pittsburgh (for W. E. Clyde Todd); Louis Agassiz Fuertes, Ithaca, N. Y.; E. R. Kulmbach, Washington, D. C.; Museum of Comparative Zoology, Cambridge, Mass. (for Outram Bangs); public schools, Washington, D. C.; Dr. R. W. Shufeldt, Washington, D. C.; Southern Branch, University of California, Los Angeles (for Dr. Loye Miller); University of Oklahoma, Norman, Okla. (for E. Crabb); and Arthur T. Wayne, Mount Pleasant, S. C. From the division of reptiles and batrachians specimens were sent to Dr. F. N. Blanchard, Ann Arbor, Mich.; J. Van Denburgh, San Francisco, Calif.; Dr. E. R. Dunn, Northampton, Mass.; Prof. W. W. Swingle, New Haven, Conn.; Museum of Comparative Zoology, Cambridge; Dr. Alexander G. Ruthven, Ann Arbor, Mich.; American Museum of Natural History, New York City; A. I. Ortenburger, Ann Arbor, Mich.; and Percy Viosca, jr., New Orleans, La. Fishes were sent to C. M. Breder, New York City; Bureau of Fisheries, Washington, D. C.; and the American Museum of Natural History, New York City. In contrast with the conditions during the previous fiscal year, a considerable number of insects has been sent to outside specialists. Among the persons receiving such material are A. L. Melander, Pullman, Wash.; C. P. Alexander, Urbana, Ill.; M. C. Van Duzee, Buffalo, N. Y.; T. D. A. Cockerell, Boulder, Colo.; L. H. Taylor, Boston, Mass.; F. E. Lutz, New York City; Alfred Kinsey, Boston, Mass.; P. H. Timberlake, Honolulu, Hawaii; Fred E. Winters, Santa Barbara, Calif.; Charles Schaeffer, Brooklyn, N. Y.; Howard Notman, Brooklyn, N. Y.; Franz Spaeth, Vienna, Austria; G. de LaPouge, Poitiers, France; H. B. Hungerford, Lawrence, Kans.; J. A. G. Rehn and Morgan Hebard, Philadelphia, Pa.; and Professor Clausen, Ithaca, N. Y.

Marine invertebrates have been sent out chiefly to the "volunteer staff" already mentioned. Other specimens have gone to Charles J. Fish, Brown University, Providence, R. I.; Rev. E. W. Menzel, Buf-

falo, N. Y.; and Miss Caroline E. Stringer, Omaha High School, Omaha, Nebr. Mollusks have not been sent out in great numbers or to many investigators. Prof. T. D. A. Cockerell, University of Colorado, received 16 specimens of Madeira mollusks; Dr. H. A. Pilsbry, Academy of Natural Sciences of Philadelphia, borrowed two lots of specimens, mostly from Mexico and the West Indies. The entire Philippine collection of planarians was sent to T. Kaburaki, of Tokyo, for examination and report. Plants from the National Herbarium were sent to Oakes Ames, Boston, Mass.; Botanisches Museum, Berlin, Germany; University of California, Berkeley, Calif.; Cornell University, Ithaca, N. Y.; Academy of Natural Sciences, Philadelphia, Pa.; Gray Herbarium of Harvard University, Cambridge, Mass.; University of Illinois, Urbana, Ill.; New York Botanical Garden, New York City; Leland Stanford Junior University, Palo Alto, Calif.; Bureau of Science, Manila, P. I.

The year's total of scientific papers published by members of the staff or based wholly or partly on our material by outsiders is 274, distributed as follows: Mammals, 19; birds, 42; reptiles and amphibians, 5; fishes, 5; insects, 79; mollusks, 62; marine invertebrates, 25; echinoderms, 8; plants, 29.

#### DISTRIBUTION AND EXCHANGE OF SPECIMENS.

Duplicates distributed to schools, colleges, and institutions aggregated 2,654 specimens, of which 1,043 were in seven sets of mollusks, regularly prepared for this purpose.

Exchanges to the number of 30,423 were arranged, 30,107 being botanical. Among the 326 zoological specimens no specially important exchange is represented; they were disposed of by the divisions of mammals, birds, reptiles, marine invertebrates, and mollusks in small lots as exchanges with various institutions and individuals. The largest exchanges of plants (more than 1,000 specimens in each exchange) were sent to the Arnold Arboretum, Harvard University, Cambridge; Botanischer Garten und Museum, Berlin-Dahlem, Germany; British Museum (Natural History), London, England; Field Museum of Natural History, Chicago, Ill.; Gray Herbarium of Harvard University; University of Illinois, Urbana, Ill.; Jardin Botanique de l'État, Brussels, Belgium; Muséum d'Histoire Naturelle Botanique, Paris; Naturhistorisches Museum, Vienna, Austria; New York Botanical Garden, New York City; Riksmuseets Botaniska Avdelning, Stockholm, Sweden; Royal Botanic Garden, Kew, Surrey, England; and Academy of Natural Sciences, Philadelphia, Pa.

TOTAL NUMBER OF SPECIMENS IN DEPARTMENT OF BIOLOGY, INCLUDING NUMBER OF DUPLICATE SPECIMENS.

As explained in previous reports, the numbers given below can only be approximately correct. It would manifestly be impossible to



count all the specimens individually. Except for the mammals, where an actual count has been made, the figures presented are based upon previous estimates, the numbers received during the year being added and the specimens disposed of by gifts and exchange or otherwise expended being deducted. It should be noted that this census does not include the collections of mammals and birds in the custody of the Biological Survey.

Duplicates have not been segregated in several of the divisions for various reasons, but more particularly because a large amount of material has yet to be worked over monographically, so as to make it safe to deplete the series. It has therefore been considered the better plan only to list the number of duplicates actually segregated. It may be further noted that the figures for the division of plants are exclusive of the lower cryptogams. In the following table the figures in parentheses indicate the number of duplicates included in the total:

Division:			
Mammals	-----	79, 584	
Birds	{ skins, skeletons, and alcoholics -----	234, 155	(8, 993)
	{ eggs -----	80, 253	
Reptiles	-----	75, 206	
Fishes	-----	685, 320	(25, 000)
Insects	-----	2, 338, 500	
Marine invertebrates	-----	712, 000	(9, 300)
Mollusks	-----	1, 483, 757	(12, 000)
Echinoderms	-----	157, 000	(50, 000)
Plants	-----	1, 100, 000	(10, 000)
	-----		
Total	-----	6, 945, 775	(115, 293)



## REPORT ON THE DEPARTMENT OF GEOLOGY.

By GEORGE P. MERRILL, *Head Curator.*

Reports from all divisions of the department show a fairly satisfactory increase in the collections, commendable progress in their care and preservation, and a steady continuation of the research work which has been a noteworthy feature of the department's achievements in the past three years.

*Accessions.*—Though slightly less in number than last year, there has been a decided increase in accessions as compared with those immediately preceding, 217 having been recorded, with an aggregate of 23,504 specimens. As is usual, we are indebted to the generosity of interested friends for the greater part of these, 137 being recorded as gifts, 35 by transfer from other departments of the Government, 24 as exchanges, 9 collected by members of the staff, 8 by purchase, and 4 as loans or deposits. Notable among these are the following:

Mention was made in last year's report of valuable collections of tin and tungsten ores obtained in Bolivia by Custodian Frank L. Hess. Early in the present fiscal year a later shipment of similar material was received, also collected by Mr. Hess especially for museum exhibition purposes and therefore unusually well selected. Likewise, through Mr. Hess's interest there were presented by the Standard Chemical Co., Naturita, Colo., examples of carnotite, hewettite, and vanadium oxides. The carnotites are perhaps the finest thus far mined, and the generosity of the company is most gratifying, as these interesting ores are being exploited to such an extent that in the very near future good exhibition material will become unobtainable. It is therefore imperative that such samples be preserved for future scientific purposes as well as display. The hewettite is the best thus far found in the United States. Three large specimens of uranophane-bearing sandstone, presented by John J. Bonner, Lusk, Wyo., were also secured by Mr. Hess.

Dr. Frank Springer, East Las Vegas, N. Mex., presented eight nuggets of gold, the largest weighing  $4\frac{1}{2}$  ounces, from the Maxwell land grant, New Mexico. These are notable as the only important examples of their kind in the Museum from the placers of that State. At Doctor Springer's request, Hon. Holm O. Bursum, Senator from New Mexico, presented examples of torbernite, a radium-bearing mineral, from White Signal, Grant County, N. Mex.

Other gifts to be noted are a series of iron carbonate (sphaerosiderite) and associated minerals from vesicles in the basalt of Columbia River at Spokane, Wash., presented by Henry Fair, Spokane; examples of the diamond-bearing rock from the Ozark Diamond Mine, Pike County, Ark., received from Austin Q. Millar, Murfreesboro, Ark.; and a fragment from a mass of metallic zinc from Linchow, China, donated by Dr. J. Morgan Clements, is interesting historically as dating back to the Ming dynasty. It is reported that 600 piculs (over 80,000 pounds) of this metal, found buried in a cave, were sent to England in 1916.

Type collections from Round Mountain, Nev., and the Tintic district, Utah, illustrating publications of the United States Geological Survey, and a series of volcanic products showing some of the phenomena connected with the recent eruptions of Lassen Peak, Calif., as observed by Dr. J. S. Diller, of the survey staff, are the chief materials transferred by that organization.

Asbestiform crocidolite, amosite, and chrysotile—materials now being commercially utilized and of value for study and comparison—were received by exchange with the Geological Survey, Pretoria, Union of South Africa, and an interesting series illustrating the mode of weathering of a dense, acid, porphyritic rock, was collected by the head curator from Mount Kineo, Moosehead Lake, Me.

The most notable addition to the meteorite collection is the magnificent mass of iron from Owens Valley, Calif., gift of Lincoln Ellsworth, New York City, and referred to in my last report. It will be recalled that this iron, as found, weighed 475 pounds and that from it was cut a portion weighing 78 pounds, which Mr. Ellsworth retained for his own cabinet, generously donating to the national collections the larger portion together with the ebony base upon which it rests. A number of examples of falls and finds either new to the collection or hitherto poorly represented were acquired by exchanges. From the Museum d'Histoire Naturelle, Paris, were obtained examples of the rare iron-rich olivine stone that fell in 1815 in Chassigny, France, and the black chondrite of Sevrukovo, Russia; from Ward's Natural Science Establishment, samples of the Rosario, Honduras, and Arlington, Minn., irons and the stone of Chantonmay, France; from Prof. Arthur B. Bibbins, an irregular slice of the iron from Odessa, Ector County, Tex.; and from Prof. Donald W. Davis, an oval section of a stone from Sharps, Richmond County, Va. Also by exchanges were acquired a complete individual of the Toluca iron, weighing 1,495 grams, sent by the National Museum of Mexico, and a 48-gram slice of the Chinautla, Guatemala, iron, from Col. Washington A. Roebling. Approximately 320 grams of a pallasite, found in June, 1921, near Cold Bay on the Alaskan Peninsula, and acquired

through S. R. Capps, of the United States Geological Survey, represents the second meteorite thus far reported from the Territory. By purchase were obtained examples of Bremervörde, Germany, Nerft, Russia, and Toubil, Siberia, falls.

Various dealers in building materials have donated samples of their products in the form of 4-inch cubes or large slabs for wall panels. These are the Beaver Dam Marble Co., Milford Pink-Victoria White Granite Co., Presbrey-Leland Co. (Inc.), and Tompkins-Kiel Co., the last named having been particularly generous.

The study series of minerals has benefited materially through exchanges. First among these are minerals and rocks from Greenland, valuable in that they are practically all examples of type minerals described in Prof. O. B. Böggild's classic monograph on the minerals of Greenland, from whom they were obtained. Unusual Italian minerals, needed to fill gaps in the systematic series, were likewise obtained from Prof. Alberto Pelloux, Genoa, Italy. Four specimens of datolites from Westfield, Mass., including three type crystals showing new forms, described by Earl V. Shannon, were secured by exchange from Ward's Natural Science Establishment.

Three important exhibition specimens are included among the gifts of this year: (1) A large cluster of coemanite from Inyo County, Calif., probably the finest thus far known, donated by W. S. Russell, Los Angeles; (2) an unusually showy and attractive specimen of cuprite showing sharp, deep-red crystals on native copper, from the Ray Consolidated Mines, Ariz., given by Dr. R. O. Hall, San Jose, Calif.; and (3) a zoned rhodonite of unusual form, with yellow axinite, from Franklin Furnace, N. J., gift of Col. Washington A. Roebing, Trenton. This last will become an object of special research by Messrs. Larsen and Shannon.

A collection, including ptilolite and associations of unusual interest, was received as a gift from C. L. Kirtley, Challis, Idaho. These are much larger and finer than those from any previously known locality. Another gift, consisting of eight specimens of pucherite from Brazil, is representative of the first occurrence of this rare bismuth-vanadium mineral in crystallized form in America. The material was presented by J. E. Carney, jr., through F. L. Hess.

The various transfers from the United States Geological Survey comprise chiefly type minerals, notably original or analyzed specimens of brannerite, bementite, gillespite, and magnesioludwigite. A section of mica from Spruce Pine, N. C., with an included garnet crystal, received from the same source, is worthy of mention and will be placed on exhibition.

By purchase were obtained (1) a series showing the effect of radium rays on the color of minerals, prepared by Prof. C. Doelter, Vienna, Austria; (2) examples of nesquehonite, demantoid garnet,

and other minerals from Italy; and (3) a number of imperfect beryl crystals from Brazil, several of which were of gem quality and from them two beautiful stones have been cut.

Collections made in the field by Assistant Curator Foshag include vanadium minerals and hydrozincite from Supai, Ariz., secured through the courtesy of C. A. Heberlein, and numerous minerals from California and Nevada.

Gems of beauty and value have been added to the Isaac Lea collection through the Frances Lea Chamberlain fund. A series of uncut diamonds comprising 20 stones, selected to show the natural crystal forms and the variations in color—white, yellow, light and dark brown—from the mines of the Arkansas Diamond Corporation, Murfreesboro, Ark., is of more than ordinary interest. A magnificent cut gem of the rare orthoclase from Madagascar, weighing 61 carats; a blue zircon from Australia, weighting 10.9 carats; a series of fresh-water pearls, both pink and white in color, from rivers of Indiana and Arkansas; a collection of agates dredged from the mouth of the Uruguay River, many of which have been polished; and 12 pieces of Baltic amber have also been acquired. Individual gifts to the gem collection include nine cut gems of sodalite, from the Ice River Valley, British Columbia, presented by Mrs. C. D. Walcott, and a fine example of cut and mounted rhodonite, deposited as a loan. B. F. Wheeler, Vincennes, Ind., donated 21 baroque pearls showing a variety in shape and coloring, from the Wabash and White Rivers, Ind.; H. P. Petersen, Washington, D. C., 70 cut pieces of precious coral in white, pink, and red; and the American Gem and Pearl Co., New York City, a yellow topaz from Brazil. This company also generously cut the two fine aquamarines from the Brazilian stones mentioned above.

Although less widely distributed geographically than last year, valuable accessions of paleontological material have been received through the generosity of various oil companies, who donated to the Museum the collections made by their field geologists, or from individuals traveling in foreign countries. Of particular interest are the Mesozoic and Cenozoic fossils from Mexico, Central and South America, India, and several European areas.

Through the interest of Dr. L. W. Stephenson, examples of the peculiar rudistids and some rare crinoids from the Upper Cretaceous of Tamaulipas, Mexico, were obtained from the Mexican Gulf Oil Co., A. W. Beckley, and Messrs. Smith, Newell, and Bishop, all of Tampico, Mexico. The rudistids have been made the subject of a memoir by Doctor Stephenson, and the crinoids described by Dr. Frank Springer. The Transcontinental Petroleum Co., Tampico, likewise donated about 5,000 specimens of Tertiary fossils from Tehuantepec, collected by Dr. Bruce Wade; Dr. C. Wythe Cooke

presented collections of Cretaceous and later fossil material obtained by himself and O. B. Hopkins at 10 localities in the Republic of Colombia; 200 specimens of Mesozoic invertebrates from the same State were received from the Instituto de la Salle, Bogota; late Tertiary fossils from the Fiji Islands were donated by Dr. A. G. Mayor, Tucson, Ariz.; and a series of Lower California fossils by John B. Orynski, Mexico City. Col. L. Worthington Wilmer, Isle of Wight, who has collected and presented much material in the past, has continued his interest by donating two collections of Lower Cretaceous fossils from England.

Especial mention should be made of fossil corals and echini received from W. R. Forrest, St. Johns, Antigua, British West Indies. A number of new species of echini are represented, which are now being studied by Dr. R. T. Jackson. Another echinoid new to science, from Barbados, was received from Sir John B. Harrison, Department of Science and Agriculture, Georgetown, Demarara, British Guiana. Likewise of importance is a collection of fossils from 125 localities, representing virtually a complete section of the Tertiary formations of northwestern India, with particular reference to the foraminiferal rocks, collected and forwarded by D. Dale Condit, formerly of the United States Geological Survey, but now engaged in geologic work in India and China.

The chief Paleozoic invertebrate collections received during the year are from North American localities, although some few lots were procured from abroad. Noteworthy gifts are comprised in two accessions of Devonian material including 5,000 fossil mollusks from various localities, received from B. Hart Wright, Penn Yan, N. Y., and 700 miscellaneous specimens from eastern Canada and an exhibition slab of sponges from western Pennsylvania, gift of E. J. Armstrong, Erie, Pa.

Special collections secured by Curator Bassler consist of approximately 2,000 specimens from central Tennessee, including both exhibition and study materials, and about 3,000 specimens, exclusive of duplicates, of Middle and Upper Devonian forms from western New York and Pennsylvania. Here may also be mentioned casts of type and other Paleozoic fossils contained in the Illinois State Museum, prepared by the curator and recorded as a gift from that institution. Similar casts of types of Arctic cephalopods were prepared and donated by Dr. August F. Foerste, of Dayton, Ohio. An important collection of fossil Bryozoa from the Carboniferous rocks of Bolivia was presented by Prof. E. W. Berry, Johns Hopkins University.

Exchanges have considerably enriched the study series, the most important comprising about 2,000 specimens from the Ordovician rocks of Nevada, received from H. G. Clinton and Percy Train,

Manhattan, Nev. Others of minor importance are recorded from England, Spain, and Iceland. But one purchase is recorded—that of a collection of Baltic amber inclosing fossil insects. This deserves special mention on account of its exhibition value.

During several short trips to the Miocene deposits along Chesapeake Bay, Norman H. Boss secured a number of examples of well-preserved cetacean remains. A skull and partial skeleton of a toothed cetacean of the squalodont group is the best-preserved specimen of its kind that has yet been discovered in North America, if not in the world, and a second fine specimen is a long-nosed cetacean, a river dolphin type, consisting of a nearly perfect skull and lower jaws with a considerable part of the skeleton. While both of these are of exhibition value, their chief importance lies in their being two of the very few specimens known from these deposits having skull and other skeletal parts definitely associated. Both represent new forms and will become types. A second accession of similar material is the collection assembled by the late William Palmer, which was purchased by the Smithsonian Institution and deposited in the Museum. This includes five good cetacean skulls and parts of others, besides many individual bones. Among the skulls are representatives of both described and undescribed genera and species.

Valuable reptilian material was acquired by way of exchanges. From the Victoria Memorial Museum, Geological Survey of Canada, was received a nearly complete hind limb and foot of a large carnivorous dinosaur, *Gorgosaurus*; a tail club of an armored dinosaur; and the fore limbs, feet, and pectoral girdle of a small trachodont dinosaur. All three of these forms from the Belly River and Edmonton formations of Canada are new to the collections and are suitable for exhibition. Other exchanges include cervical and dorsal vertebrae of the large Permian reptile, *Edaphosaurus*, remains of which are rare, and a nearly complete fossil turtle of the genus *Boremys*, the former from the University of Chicago and the latter from the University of Alberta, Edmonton, Alberta.

The John A. Savage Co., Crosby, Minn., presented a collection of skulls and several hundred bones of extinct buffaloes from the Pleistocene of Minnesota, uncovered during mining operations. No less than 14 individuals are represented, mostly pertaining to the species *Bison occidentalis*, from which it will be possible to select material for a good composite mount.

The Museum was fortunate in the acquisition of parts of the skin, hair, muscular tissue, and stomach contents of the famous Beresovka mammoth from Siberia, procured from the collector, E. W. Pfizenmayer, Stuttgart, Germany. The preservation of the soft



parts of the anatomy of extinct animals is rare, and the collection, displayed with skeletal remains of the northern mammoth, is of general interest.

Mention may also be made of two skulls of the small rhinoceros *Diceratherium cooki*, from Agate, Nebr., forming part of the collection made by Doctor Gidley during the last fiscal year, and of a new form added to the collection of extinct birds, a tarso-metatarsus of *Parapavo californicus*, donated by the University of California.

Five of the eight accessions in the section of paleobotany are of unusual value, consisting almost entirely of type material or of rare exhibition specimens. Two are transfers from the United States Geological Survey and comprise the types described by Dr. F. H. Knowlton from the Tertiary lake beds of southwest Colorado and from the Green River formation of the same State. Two fine exhibition slabs of fossil leaves from the Upper Cretaceous of Alberta, Canada, were presented by the Royal Ontario Museum of Paleontology, Toronto, while gifts from Prof. O. M. Ball, College Station, Tex., contain type specimens and an exhibition block of fossil plants.

*Explorations.*—Extensive field work has been limited wholly to the division of paleontology. The head curator did a little work on his own initiative while in Maine on a vacation, and Mr. Shannon was absent on a two-day trip with the Petrologists Club, of Washington, to Port Deposit and Conowingo, Md., and Peach Bottom, Pa., visiting a number of commercial granite, feldspar, talc, and slate mines and quarries. Early in the year Assistant Curator Foshag was detailed to collect minerals from interesting cave deposits in the Grand Canyon, near Supai, Ariz., a project made possible through the courtesy of C. A. Heberlein, operating in the region. The results of his work are noted in the accessions. In connection with his research work at the University of California, Mr. Foshag has made two field trips, covering areas in southern California and Nevada. On both of these occasions he shipped the results of his collecting to the Museum.

The geological work done by Secretary Walcott in the Canadian Rockies was in continuation of that of the field seasons of 1919 and 1920, and for the purpose of securing data on the pre-Devonian strata of the Sawback range in Ranger Brook Canyon, and a reconnaissance of the pre-Devonian formations to the northwest as far as the headwaters of the North Fork of the Saskatchewan River, Alberta. A detailed stratigraphic section was studied and measured of pre-Devonian formations in Ranger Brook Canyon, also at Fossil Mountain, 8.5 miles (13.6 kilometers) northeast of Lake Louise Station on the Canadian Pacific Railway, where large collections of fossils were made from the upper portion of the Lower Ozarkian

Mons formation. Collections were also made from the Lower Ozarkian and Upper Cambrian formations at various localities, but the real work of the season was the tracing of the geographic distribution of the formations between the Bow Valley and the Divide passing over into the Athabasca drainage at Wilcox Pass, which is about 65 miles (104.6 kilometers) northwest of Lake Louise Station.

Dr. R. S. Bassler spent his vacation in July, 1921, in geological field work in the Central Basin of Tennessee, under the auspices of the geological survey of that State. While mapping and studying the economic resources of the Franklin quadrangle, in Williamson County, south of Nashville, so many interesting collections of Paleozoic fossils were made and so much stratigraphic data obtained that arrangements were made for another summer's field work in the same general area. During the greater part of June of the current year, therefore, Doctor Bassler, in company with Dr. E. O. Ulrich and R. D. Messler of the United States Geological Survey, was occupied in making stratigraphic sections and collecting fossils over the entire Central Basin, an area of about 8,000 square miles. The ultimate object of this work is the preparation of a monograph on the stratigraphy and paleontology of Tennessee. On the completion of his work in Tennessee, in 1921, Doctor Bassler proceeded to Springfield, Ill., where casts of type specimens in the State museum collections were made in accordance with the department's plan to complete so far as possible the representation of type specimens in the national collections.

Through the courtesy of E. J. Armstrong of Erie, Pa., Doctor Bassler was enabled to visit all the classical Silurian and Devonian localities in northwestern Pennsylvania and western New York during the latter part of September. The object of this trip was to obtain field knowledge of the detailed geology and to collect carefully selected sets of fossils illustrating the numerous formations of the region. The work was highly successful, and the large collections of Devonian fossils in the Museum, concerning which exact stratigraphic data have been lacking, can now be determined and arranged in necessary detail.

Dr. E. O. Ulrich, of the United States Geological Survey, spent the summer of 1921 in continuation of his field researches on the early Paleozoic rocks of eastern North America, and previous to joining Doctor Bassler in Tennessee, as noted above, studied the Silurian stratigraphy of Pennsylvania and Maryland.

N. H. Boss made several short trips collecting in the Miocene deposits along Chesapeake Bay, all of which were under the auspices of the National Museum. These trips were unusually productive in the recovery of well-preserved cetacean remains, as noted under the accessions.

*Work of preserving and installing the collections.*—With the exception of cleaning a portion of the cases and correcting the labeling of some of the specimens, very little has been done on the exhibition collections in economic geology. One small case was installed in order to place on exhibition a large carnotite in sandstone, an American hewettite, and a uranophane-bearing sandstone, and a second case was provided in which are large specimens of molybdenum ore from Climax, Colo., and of ilsemannite-bearing sandstone, together with smaller molybdenum ores, including part of the type materials from the R. and S. molybdenum mine. Several large slabs of building stones have been placed on the wall panels, as well as three photographs picturing quarry localities.

The exhibits in physical geology have been given personal attention by the head curator with a view to perfecting the labeling and card catalogues and making such rearrangement as seemed necessary. He also personally reinstalled in a new and larger case the collection illustrating the meteoric irons and associations from Meteor Crater, near Canon Diablo, Ariz. This has been on exhibition for several years, but as now shown is much more attractive and instructive. A new exhibit illustrating phenomena connected with the recent eruptions of Lassen Peak, Calif., has been added to the series illustrative of volcanics.

Much has been accomplished in the division in the way of assorting the collections turned over by the United States Geological Survey and the accumulations of past years. A systematic attempt is being made to weed out and distribute duplicate materials and dispose of that which is waste. The most important single item has been the final installation of the Yellowstone Park collection, described by Hague and Iddings and comprising over 2,000 specimens. In the course of unpacking boxes received from the United States Geological Survey, a number of sets, supposedly the specimens upon which various survey reports are based, have been discovered. The authors of the reports having, in many cases, left the Government service, Mr. Shannon, assisted where possible by members of the survey staff, has selected such materials as seemed representative and filed them away as type sets. Among these may be mentioned the ores from Georgetown, Colo., and Butte and Elkhorn, Mont., districts. In more detail Mr. Shannon has examined the collections from the Idaho mining districts, including specimens illustrating published bulletins by Messrs. Umpleby, Jones, Livingston, and Laney. This work is being done in unusual detail, as it serves the double purpose of properly preserving the sets for reference and contributes valuable data for incorporation in Mr. Shannon's paper on the minerals of Idaho, which is being revised and enlarged for publication.

The study series of nonmetallics has been expanded and the reserve collections in physical geology cleaned and rearranged.

Owing to the absence of the assistant curator for almost the entire year little has been done with the mineralogical collections. The cases containing the systematic exhibition series were thoroughly cleaned, but only necessary changes have been made in this or other exhibits. Newly acquired materials have been cared for so far as routine required, but all have been held for inspection by the assistant curator before filing with the installed collections.

The Paleozoic invertebrates, as well as the fossil plants, have been cared for by Curator Bassler and Assistant Curator Resser, the latter devoting most of his time to the great Cambrian series built up by Secretary Walcott and the former to the collections of the later horizons. Doctor Resser individually has spent almost half of the year in the preparation and illustration of Cambrian forms for the secretary, although he has also been called upon to prepare illustrations of Museum specimens for Doctors Ulrich and Springer.

Work on the post-Cambrian Paleozoic collections has been kept fairly well in hand, but only by means of the help afforded by Doctor Ulrich and his assistants. These collections have grown to such an extent that the present Museum force is taxed nearly to the limit in caring for them properly. The extent of the work in cleaning and rearranging the study series to accommodate each year's influx of accessions may be realized when it is stated that in the sections of invertebrate paleontology and paleobotany there are over 1,000 6-foot steel cases carrying approximately 28,000 drawers. The collection of graptolites alone is of such size that when arrangements were recently made through a grant from the National Academy of Sciences to have them monographed it required the services of two persons for six weeks to properly list the material and pack it for shipment.

The Mesozoic and Cenozoic study collections have been cared for, as usual, by Drs. T. W. Stanton, W. H. Dall, T. W. Vaughan, and their assistants.

The paleobotanic exhibit has been increased by the introduction of four flat-top cases containing special exhibits which illustrate characteristic floras in various kinds of sediments, ranging from the celebrated clay nodules of the Illinois coal measures to the volcanic ash beds of Colorado. The exhibit constituting a biologic series of fossil plants has been brought near completion, several hundred labels were distributed, and a considerable number of photographs introduced into the series. Doctor Bassler has added seven large mounts to his series illustrating geological phenomena of various kinds.

The selection and labeling of materials intended for distribution, amounting this year to thousands of specimens, has consumed a con-

siderable amount of Doctor Bassler's time, as has also a report on a large collection of Chinese fossils submitted by Professor Louderback, of the University of California. In this latter piece of work he was assisted by Doctors Kirk and Knowlton, of the United States Geological Survey. He has also personally catalogued and placed in final Museum form many types of ostracods and bryozoans which, on account of their microscopic size, required special attention.

The preparation and mounting of the extinct *Glyptodon* collected in Arizona by Dr. J. W. Gidley has been the work of primary importance in the section of vertebrate paleontology. On account of the large size and unusual character of this animal, it is a most interesting and instructive addition to the exhibition series. The mount is the work of Thomas Horne, who is to be commended for having so successfully accomplished a most difficult undertaking.

Mention was made in last year's report of the preparation of a number of *Titanotheres* skulls to be used in a special exhibit. As now installed it is the most comprehensive and ambitious exhibit of this large, extinct mammal ever attempted, comprising 26 skulls and other parts of the skeleton, representing 6 genera and 22 species.

With the addition of the Palmer collection and the material obtained by Mr. Boss during the present year, the collection of cetaceans has now grown to be the most important of its kind in this country. Mr. Boss has been engaged for a considerable period in the preparation of this material, selecting representative series of the best skulls for exhibition. Two wall cases have been devoted to this exhibit, and, while the installation is not completed, it is proposed to devote one section to examples of the short-beaked cetaceans, one to the long-beaked, and a third to the whalebone whales, with a small case between containing shark teeth and other fossil remains, the whole making a comprehensive showing of the fauna of the Miocene of the Chesapeake Bay region. The entire collection of cetaceans is now in good working condition, although not fully up to standard.

In addition to the above work, Mr. Boss has prepared several rhinoceros skulls and turtles, made molds and casts of a number of fossil bird types, and has assisted in the renovation, rearrangement, and installation of several small case exhibits.

Doctor Gidley has cleaned and prepared for study most of the smaller mammals of the material collected in Arizona last year. This includes the systematic arrangement of 54 species of rodents, the new species of which have been studied and described. Mr. Horne spent considerable time on the preparation of the mastodon skulls and other bones of this collection, and Mr. Barrett was also engaged in the rough preparatory work connected with it. Mr. Barrett has also assisted in other preparatory and repair work.

Harry Warner, preparator in the division of systematic geology, has, as heretofore, been engaged in the work of cutting, polishing, and otherwise preparing mineral, rock, and ore specimens for exhibition. Several weeks of the latter half of the year have been occupied in sawing a large boulder of New Zealand nephrite. As the boulder measures some 25 by 34 inches, and nephrite is one of the toughest of minerals, the task has been one of considerable magnitude. One of the results thus far secured is a full-sized slab three-sixteenths of an inch in thickness, and a most beautiful object when viewed by transmitted light.

*Present condition of the collections.*—The collections of the department are in excellent condition as a whole. The exhibits have remained more or less unchanged, mainly because there was no necessity for extensive alterations. The available space, with the exception of that devoted to vertebrate paleontology, is fairly well filled and the addition of new material must be accomplished by retiring that which is less valuable or attractive. The gem collection has remained in charge of Miss Margaret Moodey and has been kept fully up to the standard of excellence previously established. In connection with the vertebrate exhibit, Mr. Gilmore states as follows:

A summary of improvements in the exhibition hall of vertebrate paleontology shows the completion of the exhibit of Titanotherium remains; the introduction of a small exhibit comprising the hair, skin, muscular tissue, and stomach contents of the Beresovka mammoth; the enlargement of the Chesapeake Bay cetacean exhibit; the rearrangement of the exhibit of rhinoceros remains; and the addition of the mounted Glyptotherium. As a whole, the exhibition collection, except for the lack of proper printed labels on a few of the specimens, is in the best condition in the history of the section. Although not ranking first in size among American vertebrate paleontological exhibits, the considerable number of unique specimens displayed places it well up among the leaders in the matter of scientific and popular interest. In this connection attention may be called to the following as being the only skeletons of their kind exhibited anywhere in the world: *Thescelosaurus neglectus*, *Camptosaurus browni*, *Brachyceratops montanensis*, *Stegosaurus stenops*, *Triceratops prorsus*, *Ceratopsaurus nasicornis*, *Basilosaurus cetoides*, *Epigautus hatcheri*, and *Gulo*, species. As the only representatives of species may be mentioned *Brontotherium hatcheri*, *Platygonus cumberlandensis*, *Sinopa grangeri*, and *Merycoidodon gracilis*. The exhibit of Titanotherium skulls, as mentioned above, is the most ambitious display of these huge mammals ever attempted, while the exhibit of cetacean remains, when completed, will be by far the best to be found in any American museum.

Throughout the department the study series require each year a certain amount of shifting and rearrangement owing to their continual increase. In all sections they are clean and accessible, and the catalogues are up to date.

*Researches.*—The head curator has, as time permitted, continued his researches on meteorites, the results of which are noted in the

bibliography. Manuscript of a handbook descriptive of the collections, both exhibition and study, in the entire department has been prepared for publication in the Smithsonian report, and is now in the hands of the editor. Numerous minor investigations have been completed by Mr. Shannon. New materials have been given first attention, and a series of minerals from the Columbia basalt at Spokane, Wash., and of rare zeolites from Challis, Idaho, have been examined in detail. Of materials previously incorporated in the collections, three "gouge" clays from precious metal veins, an andorite-bearing silver ore from Nevada, velardeñite from California, trichalcite from Idaho, pucherite, wavellite, pyrite, and garnet have been analyzed or crystallographically studied and described. Study of iddingsite in collaboration with C. S. Ross was continued, while in association with Dr. E. S. Larsen several minerals from Franklin Furnace were described. Hisingerite from Delaware was worked on in a joint investigation with Alfred C. Hawkins, and several minerals from Pennsylvania in collaboration with Dr. E. T. Wherry. At present the meteoric mineral merrillite is being investigated with Doctors Larsen and Wherry.

The completion of Secretary Walcott's study of the appendages of the trilobite is noted among paleontological researches. His other scientific investigations include a preliminary examination of the fossils found in the pre-Devonian formations between Bow Valley and Wilcox Pass.

Dr. Frank Springer has made further progress on his monograph of the Silurian crinoids of the Ohio Valley, for which new material has been obtained. He has also investigated for the Geological Survey of Canada some collections made by its staff in the Mackenzie River Basin, resulting in the recognition of a crinoidal fauna which, while the species are all new, parallels in a remarkable way that of the Upper Devonian formation of Belgium. One paper by him on this subject was published by the Canadian Survey and another is now in press. Specimens illustrating the discoveries were acquired for the Museum collection. Another important acquisition made by Doctor Springer for the benefit of the Museum consists of a considerable series of new species of crinoids from the island of Timor in the Dutch East Indies, obtained through his correspondence with the geologists who conducted the expedition supported by the Government of Holland. Doctor Springer has also studied and reported upon a collection from the Cretaceous of the State of Tamaulipas, Mexico, made by Dr. L. W. Stephenson, of the United States Geological Survey, in which the genus *Balanocrinus* was recognized for the first time in America.

Doctors Ulrich and Bassler completed a monograph on Silurian Bryozoa and Ostracoda of Maryland, and a treatise on Silurian

stratigraphy, both of which works are now in press by the Maryland Geological Survey. Mention should be made here of the cooperative work with the surveys of both Maryland and Tennessee, each of these institutions bearing the expense of collecting material which comes to the Museum, as well as publishing the results of field work and study. Doctor Bassler has now in preparation a volume on the stratigraphy of a portion of the Central Basin of Tennessee; has prepared an article descriptive of Carboniferous Bryozoa from Bolivia; and in addition prepared for the Smithsonian Annual Report a popular account of the Bryozoa and moss animals. In collaboration with Ferdinand Canu researches on the post-Paleozoic Bryozoa in the collections have been continued and the results of the year's work submitted for publication.

Dr. W. H. Dall has been chiefly engaged in working up the marine mollusk fauna of the Hawaiian Islands, both recent and fossil; Dr. T. W. Vaughan and his associates have continued determinative and descriptive work on collections from Mexico, the West Indies, Central America, northern South America, and the Fiji Islands; Dr. T. W. Stanton has pursued his studies of the faunas of the Cretaceous formations; and Dr. Mary J. Rathbun has studied the Tertiary decapod crustaceans collected in Mexico by Doctor Vaughan and prepared a report on the same, which will be incorporated in his report of the results of his work in Mexico. Doctor Rathbun has also identified the crabs recently collected in the Cretaceous of South Dakota and Wyoming.

Dr. F. H. Knowlton has worked continuously on the fossil plant collections throughout the year and has completed three papers on the flora of the Green River, of the Animas formation, and of the lake beds of south central Colorado. He has now undertaken a study of the Museum's series of Fort Union forms, a work which will be of great benefit in classifying these numerous specimens and eliminating the duplicates.

Papers based wholly or in part on the paleontological collections of Cretaceous age have been prepared or published by Drs. J. B. Reeside, jr., and L. W. Stephenson, of the United States Geological Survey. Remington Kellogg and Alex Wetmore, of the Biological Survey, have studied and described vertebrate materials, the former the cetaceans and the latter the fossil birds.

Dr. J. W. Gidley has completed his work on the Primates of the Fort Union; has prepared a preliminary report on the fossil vertebrates from the San Pedro Valley, Ariz., with descriptions of 16 new species of rodents, and has continued his study of the Cumberland Cave fauna.

Mr. C. W. Gilmore completed his article descriptive of an extinct Varanid lizard from Wyoming, noted in last year's report as well



under way, and has prepared and submitted three papers for publication, as follows: A new genus and species of sauropodous dinosaur from the Upper Cretaceous of New Mexico; The mounted skeleton of Brachyceratops; and A new fossil turtle from Arizona. The first two have been published, the last is in press. Mr. Gilmore's monographic study of the fossil lizards of North America, under a grant from the Marsh fund of the National Academy of Sciences, has been his chief work of investigation during the year.

Of specialists outside the Government service whose scientific researches have added to the value of the collections, Prof. James Perrin Smith, of Leland Stanford University, has submitted to the United States Geological Survey for publication a monograph on the Upper Triassic marine invertebrate faunas of North America, which is in large part based on Museum material; Dr. O. P. Hay, of the Carnegie Institution, has continued his studies of the Pleistocene vertebrates; Dr. Robert T. Jackson has described fossil echini; Dr. J. A. Cushman, foraminifera; Dr. August Foerste, Silurian cephalopods; Ferdinand Canu, bryozoans; and Drs. Arthur Hollick and E. W. Berry, fossil plants.

Many outsiders, including graduate students from various universities, have made use of the collections and laboratories during the year. Mr. A. Rodolfo Martinez, of the Geological Institute of Mexico, continued his studies for several months, and Mr. Seitaro Tsuboi, of the Imperial University of Tokyo, spent considerable time in the chemical laboratory, while shorter visits were made by Professors Nakamura and M. Watanabe. Mr. and Mrs. Robert Barrett spent three weeks studying collections of California rocks, preparatory to teaching in a boys' summer camp in California.

Prof. Henry Fairfield Osborn and Dr. W. D. Matthew, of the American Museum of Natural History, studied our vertebrate collections in connection with their special researches; Dr. Ralph Chaney, of the University of California, Miss E. Round and Miss Weston, of Brown University, and Prof. A. E. Douglas, of the University of Arizona, have examined the paleobotanic collections, the last named studying especially the fossil woods with reference to their bearing on past climates.

In addition to research work on the collections, all members of the staff have been called upon to do a considerable amount on materials submitted by outsiders for examination and report. Within the year, 473 lots have been reported on, 395 of which were geological or mineralogical, and 78 paleontological.

*Distributions.*—For purposes of scientific research or as loans for exhibition or other usage, there were sent out during the year 39 lots of material, aggregating 2,978 specimens, and 500 pounds of material in bulk. These were distributed among workers in other

branches of the Government, colleges or other institutions, and special investigators. As exchanges there were shipped 27 lots, comprising 1,201 miscellaneous specimens and 70 pounds in bulk; and as gifts, 20 shipments, aggregating 3,270 specimens, and 75 pounds of blowpipe material, specially prepared to meet individual needs, and in addition, from the sets prepared for distribution to schools, 30 sets of minerals and ores, 30 of rock weathering and soils, and 3 of invertebrate fossils, with a total of 3,318 specimens.

*Total number of specimens in the department.*—It was stated in last year's report that a conservative estimate of the number of specimens in the department showed a total of not less than 1,500,000. The division reports of the current year estimate the receipts as aggregating 23,504 specimens, thus making the total at the end of the year 1,523,504. The number of duplicates, which are not included in the above estimate, can not possibly be given.

## DEPARTMENT OF ARTS AND INDUSTRIES.

### REPORT ON THE DIVISIONS OF TEXTILES AND MEDICINE AND THE SECTIONS OF WOOD TECHNOLOGY AND FOOD.

By F. L. LEWTON, *Curator of Textiles.*

COMPARISON OF INCREMENT OF SPECIMENS OF 1921-22 WITH THAT OF 1920-21.

The accessions received during the year number 85 (including 3 joint accessions with other departments), being 10 more than the preceding year.

The entries covered by the above accessions number 2,792, 1,856 more than were received in the fiscal year 1921. These entries may be divided into six groups, as follows: Textiles 920, medicine 1,029, wood technology 711, foods 71, and miscellaneous organic products 61, each group, with the exception of foods and organic products, showing more entries than last year.

The additions to the collections assigned to these divisions represent for the most part specimens not heretofore represented in the Museum and taken as a whole are of greater value than those received last year.

#### ACCESSIONS DESERVING SPECIAL NOTICE.

Cooperation with the Department of Commerce has resulted in the addition to the Museum's collections of several hundred specimens of industrial raw materials not heretofore represented. This material had been sent to the department by American consular officers and trade commissioners and placed in the files of the Bureau of Foreign and Domestic Commerce. After having been referred to in the Commerce Reports and loaned to interested business firms and manufacturers, the specimens served their main purpose, but by transfer to the National Museum they are made to serve general education and are available for scientific study. The 833 specimens thus acquired include spinning and cordage fibers, packing materials, paper yarns and fabrics, and some interesting textile fabrics of foreign manufacture; also woods, tanning materials, dyestuffs, crude drugs, gums, resins, rubber, waxes, casein products, sugars, and spices. A card catalogue of this material, connecting it with the commercial reports concerning it, is filed in the Bureau of Foreign and Domestic Commerce, which makes these specimens still available to inquirers.

The generous cooperation of Cheney Bros., of South Manchester, Conn., has been continued by the contribution of specimens of tie silks, silk scarfs, ties, mufflers, handkerchiefs, and socks showing the use of silk for men's wear.

The Duplan Silk Corporation, New York City, added to the numerous specimens previously contributed by it two specimens of figured novelty crêpe fabrics showing beautiful combinations of thrown silk and artificial silk.

Specimens of mohair net, an open-weave drapery fabric made from cotton and mohair yarns, were contributed to the textile collections by Leshner, Whitman & Co. (Inc.), New York City.

Steps in the manufacture of seal plushes and other fur fabrics are illustrated in an interesting series of specimens presented by Sidney Blumenthal & Co. (Inc.), of New York City.

Two specimens of Bokhara prints, one on satin striped voile and one on a heavy novelty crêpe, were contributed by H. R. Mallinson & Co. (Inc.), also of New York City.

To Tobler & Co., New York City, the Museum is indebted for three samples of Dufour silk bolting cloth, a strong, fine, gauze-woven fabric made in Switzerland especially for use in mills as a bolter or sieve to separate the finer products of milling from the coarser particles. Silk bolting cloth is not made in this country, and it is the only manufacture of silk that is imported into the United States without paying a customs tax. The finest of the specimens has 26,569 mesh to the square inch.

A valuable addition to the silk exhibit was the gift to the Museum by Mr. Amin Meluk of specimens of the cocoons and crude silk produced by larvae of the eri silk moth, *Attacus ricini* Boïsdual. While the raising of the common mulberry silkworm can be successfully carried out in this country, the production of raw silk in America has not been successful, owing to the impossibility of reeling the cocoons in competition with the low-paid labor of the Orient. The production of spun silk from pierced cocoons and other forms of waste silk, however, has grown to be an important business in the United States, since it is practically a machine product. The cocoons produced by the eri silkworms can not be reeled and must be handled by machinery. Eri silk is white and possesses many of the properties of tussah without the objectionable brown color. The food plant of the eri silkworm is common in the Southern States, and it appears that silk from this source may be produced in the United States.

The ancient art of weaving, which for a long time has been given over in this country to power-operated machines, is again taking its place as a popular and fascinating handicraft. Following a lecture in the south gallery of the Arts and Industries Building, October 25,

1921, on "Homekraft weaving," by Mrs. Anna Knott Shook, of New York City, the Museum was presented with one of the hand-operated portable looms invented and used by Mrs. Shook and 14 beautiful examples of woven articles formed directly on the loom according to her system. These articles represent a departure from the ordinary hand weaving and include useful household articles and wearing apparel.

While the widespread revival of hand-knitted garments, such as socks, sweaters, and caps, which marked the period of the World War has somewhat subsided, since there is no longer a need to knit such garments for soldiers, it is still true that hand knitting continues to be very popular, and there has been even an increase in the demand for fancy sweaters, scarfs, etc. To meet this demand for novelty effects in hand-knitted garments, manufacturers of worsted knitting and crocheting yarns have been producing many new kinds of yarn for this purpose. S. B. & B. W. Fleisher (Inc.), of Philadelphia, Pa., contributed for exhibition examples of these new yarns and a series of hand-knitted garments illustrating their use, which are to replace the extensive series of specimens presented by them in 1919.

Specimens of cotton fabrics collected in Java, decorated by the wax-resist process known as "batik," whereby a design is first traced on the undyed fabric by means of a fine stream of melted wax, and a "tjanting," one of the small copper implements for melting and pouring the wax, were purchased to illustrate this beautiful and popular method of decorating fabrics.

Standard commercial grades of the most important cordage fibers were received through the generous cooperation of Wigglesworth & Co. (Ltd.), of London, England, the firm which handles the greater part of America's imports of these raw fibers.

A two-spindle flax-spinning wheel for spinning and winding two threads at one time was presented by William H. Beach, of Seneca Falls, N. Y.

A hand-operated knitting machine, capable of knitting stockings, scarfs, etc., was contributed by Mr. E. L. Sechrist, of Washington, D. C., for inclusion in the Museum's series of models and machines arranged to illustrate the principles of knitted structures.

In the division of medicine the most important accession of the year was a series of charts prepared and contributed by the H. K. Mulford Co., of Philadelphia, Pa., comprising 91 specimens, photographs, and labels so arranged as to tell the story of the prevention and cure of certain diseases by means of biological medicines; also a series of 15 large colored transparencies and two bromide enlargements of photographs which illustrate some of the principal processes and tests used in the manufacture of these medicines by methods approved by the Government. These charts show the vaccine treat-

ment of rabies, the serobacterin treatment of typhoid fever and whooping cough, and the principles of diagnostic skin tests used to determine the cause of certain diseases and conditions of health. They are a continuation of the series referred to in last year's report, which is arranged to illustrate what vaccine (or bacterin), serum, and serobacterin therapy are. The fundamental principle of these forms of therapeutics is immunity, and the medicaments used to produce this active or passive immunity are, in vaccine or bacterin therapy, the infectious agents themselves; in serum therapy, the blood serum of an animal that has been immunized against such an infectious agent; and in serobacterin therapy, the infectious agent after it has been sensitized by the serum of an animal immunized against that agent.

While the mortality is slight from hydrophobia and man can protect himself from it by police measures, the mere mention of the name evokes legendary visions of raging victims, bound and howling, inspiring terror in all those in their vicinity. Up to the time of Pasteur every person and every animal that contracted the disease died from it. Pasteur, the famous French bacteriologist and scientist, basing his work on the discovery of Jenner that vaccination with cowpox prevents smallpox and taking advantage of the long incubation period of the disease, developed the present system of immunization against rabies. Realizing that the full-strength virus could not be administered at once without transmitting the disease, Pasteur weakened or attenuated the action of the virus, found in the spinal cord of an animal which had died of hydrophobia, by allowing a portion of the cord to become old in contact with air. He proved that after 14 days the virus is harmless, and that a dog which receives a properly prepared treatment from a rabic spinal cord 14 days old, then the following day from one 13 days old, then from one 12 days old, and so on until the fresh cord is used, does not contract rabies and is immune to it.

The serobacterin treatment of whooping cough aims to assist nature to develop an immunity so that the effects of *Bacillus pertussis*, the essential causative factor of the disease, and its toxins may be overcome. Whooping cough causes about 10,000 deaths every year in the United States, of which more than half occur in infants less than a year old.

It is said that during the Spanish-American War and the Civil War the incidence of typhoid fever was 91.22 and 70.69 per cent, without serobacterin treatment, and in the American Expeditionary Forces less than 0.1 per cent, with serobacterin treatment.

Two charts of the series have been arranged to show how physicians determine the protein or proteins which give rise to systematic disturbances, such as hay fever, asthma, and food idiosyncrasies.

An unusually attractive and complete series of 127 specimens of essentials oils and related substances were received by transfer from the Bureau of Chemistry, Department of Agriculture, through Dr. F. B. Power, pharmaceutical research chemist of that department. These specimens were prepared by Fritzsche Brothers, of New York City, who are the American agents of the largest European manufacturers of essential oils and aromatics. In addition to a very complete series of the true and synthetic oils used in medicine and perfumery there are a number of rare and valuable specimens of aromatic substances, such as ambergris, Tonquin musk, artificial musk, etc. The addition of this series to other material on the subject of essential oils fairly completes the Museum's exhibit of this subject.

Although absorbent cotton and gauze only found a place in medicine with the birth of Listerism, a form of aseptic and antiseptic surgery introduced late in the eighteenth century by the English physician, Lord Joseph Lister, its growth and development coincident with the evolution and revolution of surgical methods has been so great that to-day entire mills and factories are engaged in carrying out the processes which transform the raw cotton fiber into surgical dressings of various sorts and kinds. Johnson & Johnson (Inc.), New Brunswick, N. J., donated 56 specimens, 6 descriptive charts, 1 book, and 28 photographs illustrating the treatment to which cotton is subjected on its long journey from the field to the finished surgical dressing. There are also included packages of plain, medicated, and strengthening bandages and complete first-aid kits and packets for emergency use. This firm also presented an exhibit intended to show how plasters are made and comprising 55 specimens and 10 illustrations. Plaster medication has always enjoyed considerable popularity because of the convenient manner of application. This popularity and increased demand has resulted in the invention of plaster-making machinery of ingenious construction and the development of an industry. The making of plasters by doctors and druggists has now become a lost art because of these machines. The fact is brought out that medicated plasters are divided into three classes with regard to their therapeutic or medicinal effect, as follows: Those which act epidermatically—that is, upon the surface of the skin; those intended to produce an endermatic effect by penetrating into the skin; and those for constitutional and systematic effects by not only penetrating into but through the skin.

Research work and clinical observation have led to a remarkable growth in the employment of animal derivatives in medicine and surgery. In addition to the specimens of glandular products, or-

ganic extracts, digestive ferments, and pharmaceutical preparations obtained from slaughtered animals, already shown in the division, there were presented during the year by the Wilson Laboratories, Chicago, Ill., 33 specimens and 11 photographs which show the manufacture of catgut ligatures and sutures. This exhibit demonstrates that the basic material of these surgical necessities is the small intestine of the sheep and not the intestine of another animal, as the name might imply; also that the first 20 feet of the smooth part of the intestine—which is the only part used in surgery—is cleaned, washed, stretched, sterilized, and then cut into strands. Two or more of the strands are twisted together by an ordinary spinning wheel, gauged into sizes based on the American wire-gauge standard, and placed in sealed tubes ready for use. In addition to a complete series of plain, chromic, pyoktannin, iodized, and silverized catgut, the exhibit contains an assortment of other ligatures and sutures of animal origin, such as horsehair, kangaroo tendon, silkworm gut, and twisted silk. For the purpose of showing the connection between these ligatures and sutures and surgery, a series of surgical needles, needle holders, and wound clips were included in the exhibit. The Kny-Scheerer Corporation of America, New York, N. Y., donated 112 needles of different shapes and sizes and 9 needle holders. The Museum is indebted to Fred Haslam & Co. (Inc.), of Brooklyn, N. Y., for the contribution of a surgeon's suture outfit, complete, with magazine wound-clip forceps, wound clips, etc.

It has not been so many years ago since all pills and tablets used in medicine were made by hand. Necessity, the mother of invention, created the demand for machines to do this work, and an exhibit was installed during the year to give an idea of the workings of a modern pill and tablet manufacturing plant. For this Eli Lilly & Co., of Indianapolis, Ind., contributed 29 specimens and 14 photographs. With the compound cathartic pill and the phenasbic tablet as types, each progressive step—weighing, mixing, kneading, shaping, and coating—have been illustrated so that each process can be easily understood.

The making of clinical thermometers is shown by a series of 30 specimens donated by the Nurnberg Thermometer Co. (Inc.), of New York City. This exhibit illustrates the various processes in the manufacture of thermometers of this kind from the time the glass tubing is received from the glassworks until the scale is engraved in wax, etched, and blackened so it can be easily read. One of the most interesting steps is that in which the bulb and tube of thin glass which contains the mercury and the thicker tube upon which the scale is etched are joined together.



The necessary apparatus was obtained to illustrate the following pharmaceutical operations: Vaporization, distillation, desiccation, comminution, sifting, lotion, precipitation, straining, filtration, separation of immiscible liquids, dialysis, expression, and percolation. The following companies contributed material for this exhibit: Whitall-Tatum Co., Philadelphia, Pa., 20 pieces of pharmaceutical apparatus; the Will Corporation, of Rochester, N. Y., 11 specimens of laboratory apparatus; Gilpin, Langdon & Co. (Inc.), Baltimore, Md., 7 powdered drugs of different degrees of fineness; and Dufur & Co. (Inc.), Baltimore, Md., 6 samples of brass-wire sieve cloth.

For the purpose of showing the origin of certain of the well-known alkaloids, the following concerns donated the specimens mentioned: The Hoffmann-La Roche Chemical Works (Inc.), New York City, 22 specimens of medicinal alkaloids; Gilpin, Langdon & Co. (Inc.), Baltimore, Md., 22 specimens of crude and powdered vegetable drugs; Powers-Weightman-Rosengarten Co., Philadelphia, Pa., 13 specimens of medicinal alkaloids and alkaloidal salts; and Parke, Davis & Co., Detroit, Mich., 10 narcotic alkaloids and alkaloidal salts.

Among the additions to the historical medical collections the following are worthy of mention: One hundred and sixty-five photographs, illustrations, and pictures to show the development and growth of homeopathy, contributed by Dr. W. A. Dewey, of Ann Arbor, Mich.; a Homeopathic Cyclopaedia of Drug Pathogenesis in four volumes, donated by Dr. J. P. Sutherland, dean of the Boston University School of Medicine, Boston, Mass.; 33 specimens of standard homeopathic literature presented by Boericke & Tafel (Inc.), Philadelphia, Pa.; 10 specimens and documents relating to the history of homeopathy in the United States, a gift of Dr. Carroll Dunham Smith, New York City; a case of surgical instruments used during the Civil War by Dr. A. T. Still, the founder of osteopathy, contributed by Dr. George A. Still, of Kirksville, Mo.

The most important accession to the collections representing wood technology is that contributed by the Hammermill Paper Co., of Erie, Pa., illustrating the manufacture and use of sulphite wood pulp for writing papers. This comprises 104 specimens, 26 sepia photographs, and 4 lithographic prints and is arranged in two series—one in which every stage of the process is represented either by a specimen or a photograph and the other to show the exact quantity of each ingredient required to produce 100 pounds of sulphite paper.

The American Walnut Manufacturers' Association was instrumental in securing the cooperation of its members in collecting a

beautiful series of important manufactured articles showing the use of black walnut. The material for this cooperative exhibit was contributed by the following: American Walnut Manufacturers' Association, Chicago, Ill., 13 photographs showing the manufacture of walnut veneers and three-ply wood panels of the same material; Winchester Repeating Arms Co., New Haven, Conn., seven specimens of walnut rifle stocks and fore ends; Pickrel Walnut Co., St. Louis, Mo., composite panel containing eight figures of American walnut; Wood-Mosaic Co. (Inc.), New Albany, Ind., three specimens of walnut parquetry flooring; Hartzell Walnut Propeller Co., Piqua, Ohio, three specimens showing the manufacture of a walnut aeroplane propeller; George W. Hartzell, Piqua, Ohio, two specimens of walnut stump-wood veneer; Penrod Walnut & Veneer Co., Kansas City, Mo., six specimens of walnut burl veneer; and the American Wood Rim Co., Onaway, Mich., one all-wood automobile steering wheel.

Through the continued cooperation of the United States Forest Service, another group of specimens illustrating wood turning was added to the technical collections after the convention of the National Association of Wood Turners, held in this city June, 1921. This material was contributed by the following nine firms: American Handle Co., Jonesboro, Ark., five ax and hammer handles of white hickory; the J. B. Hellenberg Co. (Inc.), Coldwater, Mich., 31 specimens of sporting and athletic goods, wands, mallets, etc.; American Enamel Co., Providence, R. I., 34 specimens of umbrella handles; Warren Novelty Co., Warren, Vt., one hard-maple candle pin for use in game of that name; Horatio Kelsey (Inc.), Clinton, Conn., two specimens of red hickory hatchet and hammer handles; Newton & Thompson Manufacturing Co., Brandon, Vt., 150 small toys and toy and game parts, showing irregular wood turning; Crandall Bros., North Kingsville, Ohio, 30 specimens of bungs, faucets, and vent plugs for casks; Jenkins & Bogart Manufacturing Co., Kingfield, Me., three specimens of shaving brush handles and one novelty wood turning; and Oldtown Realty Co., Oldtown, Me., 14 specimens of mop and dust brush handles and finger and comber blocks.

From George W. Smith & Co. (Inc.), Philadelphia, Pa., there was received a series of six specimens showing the use of laminated wood in the manufacture of wooddisk wheels for motor vehicles. The growing importance of the use of wood in the manufacture of motor-driven vehicles is indicated by its position of eleventh place as compared with twenty-first place for other vehicles in a recent list of wood-consuming industries of New York State.

From the Bureau of Foreign and Domestic Commerce, Department of Commerce, there was received the loan of 153 specimens of woods, representing 108 species, from the following countries:

Australia, Brazil, Colombia, Dominican Republic, Ecuador, Japan, Mexico, Peru, and Venezuela.

Through the continued cooperation of the States Relations Service of the Department of Agriculture, prize-winning jars of fruits, vegetables, and meats, put up by members of boys' and girls' canning clubs and selected by State demonstration leaders, have been received for exhibition in the section of foods, and eight colored bromide enlargements of photographs showing a girl club member canning by the cold-pack method were obtained from the office having charge of the boys' and girls' club work.

The American Relief Administration, which has had charge of the feeding of destitute children in Europe, after the special exhibition of its work here in the Museum during January, 1922, presented numerous photographs, charts, and printed documents illustrating the feeding of Austrian children, the methods used in determining those which were undernourished, and the computation and measurements of standards of diet. This material will be of value for comparison with our present exhibit arranged to show the fuel value in calories of ordinary articles of food.

#### WORK OF PRESERVING AND INSTALLING COLLECTIONS.

All of the collections under the care of the curator have been carefully inspected for insects, and all perishable material like wools and foodstuffs have been fumigated several times, and the board specimens of fresh lumber were treated with kerosene to prevent attack by termites. This has meant, however, constant vigilance.

The cataloguing of new specimens has been kept up to date, and the installation of new material has been made as soon after its receipt as was possible. A large part of the time of one preparator was given to making gummed letter case labels for the textile exhibits and for the medicinal collections.

The examination and indexing of new textile terms and other special information contained in the large number of trade papers and periodicals received by the sectional libraries of textiles, woods, medicine, and foods has occupied the time of the preparators when not engaged in other duties.

Four new permanent installations and a special temporary exhibit were set up in the division of textiles during the year. A special exhibit of live silkworms was installed in the south hall during the second week in June, 1922. For this purpose about 500 silkworms of different ages representing the Italian and Japanese varieties were presented by Mr. T. J. Keleher, of Washington, D. C. The more mature of the silkworms finished feeding and spun their cocoons to the delight of hundreds of school children. The younger insects, however, were lost, owing to a poisoning of their food supply by the

spraying machine used in protecting the shade trees of the near-by park. The installations included an exhibit of hand-loom weaving, silk textiles for men's wear, ornamental objects made from human hair, and models of knitting machinery. The exhibits devoted to fur fabrics, plushes, combinations of thrown and artificial silks, printed silks, mohair textiles, and tied and dyed fabrics were rearranged and their appearance much improved. The exhibit showing foods put up by children was enlarged and rearranged, and there were added eight colored bromide enlargements of photographs showing important steps in the cold-pack method.

The assignment of the entire east gallery for the use of exhibits of the division of medicine necessitated a complete rearrangement of all of the cases. This reorganization resulted in the installation of 20 new exhibits and the rearrangement of several others. The installations belonging to the historical series consisted of exhibits showing the history and principles of osteopathy, historical articles relating to homeopathy, a case arranged to show the history of the United States Pharmacopœia and the work of revising and publishing the ninth edition of this official standard, and eight more bromide enlargements of photographs of men famous in medicine. These comprise Harvey, the English doctor who discovered the circulation of the blood; McDowell, the American who performed the first ovariectomy; Long, an American, the first surgeon to use ether as an anesthetic in a surgical operation; Morton, the American who demonstrated ether anesthesia to the world; Pasteur, the Frenchman who was the pioneer in bacteriology; Koch, the German who discovered the cause of tuberculosis and cholera; Reed, an American who was president of the commission which demonstrated that yellow fever is transmitted by mosquitoes; and Gorgas, the famous American sanitarian who made possible the building of the Panama Canal. This completes a series of 16 pictures, which are mounted on the pilasters above the cases. In addition to utilizing a space the barrenness of which detracted from the exhibits as a whole, these portraits point out some of the noted benefactors of the human race who have overcome the general skepticism regarding new medical doctrines and who have constructed a scientific basis for the cure of disease. The pharmaceutical collections of the division were enhanced by the addition of three exhibits arranged to show the steps in the manufacture of medicated plasters, pills, and tablets and some of the principal pharmaceutical operations employed in the manufacture of medicines. The part taken by medicine and surgery in the development of special branches of industry has been shown by exhibits illustrating the manner of making medicated plasters, surgical dressings, catgut ligatures and sutures, and clinical thermometers. The exhibits illustrating the treatment of

whooping cough, typhoid fever, and hydrophobia by serums and vaccines and how diagnostic skin tests are made are an addition to the series of public health collections. Fifteen colored transparencies were mounted during the year at the end of the gallery, where use can be made of the natural light. These transparencies show important steps in the preparation of vaccines and serums by methods approved by the Government. Two large photographs show a modern plant in which these medicinal agents are prepared for distribution.

The installation of six new exhibits was completed in the section of wood technology during the past year. These comprise an exhibit of balsa, a wood weighing but little more than half as much as cork, consisting of a cross section of young balsa tree, a squared small beam 4 feet long, and an ice-cream box constructed entirely of this wood, the insulating value of which is such that a quart of ice cream will remain firm in this box for five hours with an atmospheric temperature of 75°; specimens showing the work done by the Linderman automatic dovetail glue jointer in jointing small waste pieces and building up wide lumber from narrow stock; the exhibit of the Hammermill Paper Co. illustrating the manufacture of sulphite wood pulp and paper and arranged in two series to show steps in the process used and the quantity of each material required for 100 pounds of paper; an airplane propeller of American walnut to replace the white-oak propeller transferred to the aircraft building; a series of containers and molded articles made of wood pulp by the Drake process; and the series of specimens illustrating uses of American walnut contributed by the American Walnut Manufacturers' Association and some of its member firms. The walnut series includes veneer cutting and beautifully figured veneered panels, gun stocks, an automobile steering wheel, and specimens of parquetry flooring.

#### PRESENT CONDITION OF THE COLLECTIONS.

With the exception of slight fading of certain textile fabrics which are affected by the light and the discoloration of certain food samples due to exposure to light and heat, there has been but very little deterioration of either the exhibit or study materials.

The older material in the division of medicine has been carefully examined and only expected deterioration is noticeable. Some of the old series of chemical drugs, particularly those which are subject to efflorescence and deliquescence, are worthless, and some of the pharmaceutical preparations made years ago which undergo changes are no longer fit for exhibition purposes and have been removed to the storage room until they can be examined by a condemnation committee. The preserving fluid on the fresh anatomical specimens was changed during the year.

The collections representing wood technology are in good condition. The first set of balsa wood specimens were injured by handling and their softness tested with finger nails and pocketknives by visitors desiring to verify statements of its unusual properties. These have been replaced by fresh material donated by the former cooperator.

RESEARCH AND STUDIES CARRIED ON AT THE MUSEUM.

*For the benefit of the Museum.*—As much time as could be spared from routine work has been given by the curator and one assistant to the preparation of comprehensive technical definitions of textile fabrics based upon authentic specimens in the Museum's collections. This has meant the careful examination of all available current textile literature, as the technical mill and trade terms used in older works of reference are often not in accord with those in current use in the United States. Further progress has been made toward the completion of a fabrics glossary based on actual specimens, as the Museum's collection of named textiles has been steadily increased.

*The use of the Museum's collections and facilities by visitors and correspondents.*—The industrial collections, particularly those concerned with house construction and furnishing, were studied by the professor of economics at George Washington University and his students. The wood collections were made use of by J. H. Lohman, of Panama, who spent some time studying the woods of that region, and H. T. von Bernewitz, jr., who examined specimens of various woods to determine their value for violin making. Specimens of crude drugs were brought on numerous occasions for comparison with the Museum's collections by the pharmacognocist of the Bureau of Chemistry, J. F. Clevenger, who is engaged in determining the identity of drug imports under the food and drug law. Numerous visitors made inquiry at the curator's office in search of special information suggested by the exhibits and made particular use of the technical books on textiles, woods, and drugs in the sectional libraries. The curator and assistant curators furnished special information on industrial raw materials and the identification of specimens from time to time during the year to the Bureaus of Chemistry and Plant Industry, United States Department of Agriculture. The identification of specimens of fibers and fabrics, gums, resins, seeds, and woods for numerous individuals, both in and out of the Government service, has been a regular part of the work of this division. The curator furnished the identification of cottons and cotton seeds introduced by the Office of Foreign Seed and Plant Introduction and Distribution, Department of Agriculture, and to him has been referred all letters requesting information on silk and artificial silk received by the Department of Agri-

culture and other Federal departments. For James H. Harper, of this city, the curator identified and made a mechanical analysis of a specially prepared silk yarn used in the construction of a network for correcting the acoustics of large public buildings.

*Names of special cooperators.*—A number of persons deserve special mention for their splendid cooperation in arranging for the contribution of specimens to the Museum and for making use of every opportunity of presenting the needs of the Museum to persons and professional bodies in a position to render assistance. In this connection it is desired to name Mons. Jean L. Duplan, president of the Duplan Silk Corporation of New York and a member of the French Commission attending the Limitation of Arms Conference; Dr. F. E. Stewart, consulting director of the scientific department of the H. K. Mulford Co., Philadelphia, Pa.; Dr. J. F. Francis, chief chemist of Parke, Davis & Co., Detroit, Mich.; Dr. W. A. Dewey, of the University of Michigan; and two representatives of the American Osteopathic Association, Dr. Norman C. Glover, of this city, and Dr. George A. Still, of Kirksville, Mo., whose assistance has resulted in completing the exhibit illustrating the principles of osteopathy.

#### RESEARCHES ELSEWHERE AIDED BY MUSEUM MATERIAL.

The identification and restoration of missing parts of an ancient spinning wheel, owned by H. E. Eckler, of Cleveland, Ohio, was made possible by the sending to him of a photograph of a similar wheel in the Museum's collection, marked to indicate the missing parts.

Specimens of Coto bark were furnished to J. F. Clevenger for use of the pharmacognosy laboratory, Bureau of Chemistry, Department of Agriculture, in the study of a series of barks of this kind collected by the Mulford Biological Exploration of the Amazon Basin.

The United States Army Medical School was furnished specimens of *Cannabis indica* and *Cannabis americana* for use in the trial of a soldier by court-martial.

Two specimens of Curaçao aloes from the drug collections were lent Prof. E. N. Gathercoal, College of Pharmacy of the University of Illinois, for use in the monograph of this medicinal substance by the committee engaged in the revision of the United States Pharmacopoeia.

#### DISTRIBUTION AND EXCHANGE OF SPECIMENS.

Dr. R. L. Griggs, professor of botany at George Washington University, was furnished five specimens of fibers of tropical plants for use in teaching. Ten board samples of native woods were prepared and sent as a gift to the State Museum, Springfield, Ill., and 19 hand samples of woods from native and introduced trees were

donated to the New York State College of Forestry at Syracuse, N. Y.

*Statistical data.*

	Textiles.	Woods.	Foods.	Organic products.	Medicines.
(a) Number of specimens received during the year 1922.....	920	711	71	61	1,029
(b) Number of specimens in the collections June 30, 1922 (estimated).....	10,542	3,496	1,036	6,451	10,320
(c) Duplicate specimens included in total given under (b) (estimated).....	745	376	25	782	1,068
(d) Last entry in the catalogue:					
June 30, 1921.....	4,261	1,136	824	318	1,170
June 30, 1922.....	<sup>1</sup> 4,545	1,522	<sup>1</sup> 852	<sup>1</sup> 377	<sup>1</sup> 1,600

<sup>1</sup> This does not include the old specimens catalogued prior to 1912, which bear anthropology catalogue numbers.



REPORT ON THE DIVISIONS OF MINERAL AND MECHANICAL  
TECHNOLOGY.

By CARL W. MITMAN, *Curator*.

In the report for the year 1921 mention was made that in May of that year the separate divisions of mineral technology and mechanical technology were combined and administered under one head. With the close of the present fiscal year the administration of the combined divisions has been in existence 14 months, and it is gratifying to note that the benefits which it was expected would accrue to the Museum and the public have been in a measure realized. The advantages gained are not as evident in new exhibits, for the reason that there is practically no available exhibition space, as they are in the improvement of a large number of the existing exhibits through an interchange of facilities previously had only by one or the other of the independent divisions. It is estimated that in this connection the results attained are 50 per cent greater than would have been possible under the conditions which existed previously.

COMPARISON OF INCREMENT OF OBJECTS OF 1921-22 WITH THAT OF 1920-21.

As mentioned in the last annual report, it was proposed in the immediate future to expend all efforts in the division of mineral technology toward rounding out the exhibits already on hand, so that during the present year no effort has been made in this division toward the securing of new materials except such as might be necessary in the completing of the present exhibits. While four accessions, comprising 466 specimens, were obtained in 1920-21, five accessions were received during the fiscal year just closed, comprising 30 objects. All of these accessions have been used to round out the present exhibits, three of which are gifts and two have their source within the Museum.

From a numerical standpoint the collections in the division of mechanical technology were increased by the receipt of over 100 per cent more specimens during the year than were received the preceding year. There were received 356 objects, as compared with 162 the previous year. This number is divided among 33 accessions, the same as in 1920-21. Of these accessions, 24 are gifts, 7 are loans, 1 a transfer, and 1 made in the Museum. The distribution of the 356 objects is as follows: One hundred eighty-nine to transportation, 57 to metrology, 15 to firearms, and 95 to electrical engineering.

## ACCESSIONS DESERVING SPECIAL NOTICE.

In the division of mineral technology four of the five accessions consist of 28 transparencies, colored and uncolored, which are used very appropriately in further amplifying several of the division's industrial exhibits. Twenty of these transparencies were made in the Museum's photographic laboratory—12 for the natural gas exhibit and 8 for the exhibit showing the manufacture of sodium compounds by the Solvay process; four transparencies were received as a gift from the Union Sulphur Co., New York City, showing interesting phases of the sulphur-mining industry as practiced in Louisiana; and four colored transparencies illustrating a like number of the more important uses of Portland cement, received as a gift of the Atlas Portland Cement Co., New York City. The fifth exhibit consists of a case containing a technological chart or flow sheet showing the steps, with products, in the manufacture of the thermal insulator, "85 per cent magnesia." This exhibit is used in conjunction with the division's asbestos products exhibit and was received as a gift from the Magnesia Association of America, Philadelphia, Pa.

Of the 32 accessions received by the division of mechanical technology and distributed to its several branches of activities, all are worthy of note. Special reference, however, must be given to the following:

*Land transportation.*—The exhibit visualizing the development of the locomotive was enhanced by a complete working model, one twenty-fourth actual size, made of brass and steel, of the "American" type locomotive. It illustrates the early twentieth century development of the type used principally for high-speed passenger service, a type previously unrepresented in the division's collections. The model is loaned by John S. Clarke, Ardmore, Pa. The division's exhibit relating to the development of the locomotive contains many gaps which it was hoped could be gradually closed by the construction of well-made models. The facilities at hand for such work are very limited, however, and the time required would be very extensive. As an alternative, therefore, the division was pleased to receive as a gift from the Baldwin Locomotive Works, Philadelphia, Pa., a series of 71 photographic copies from original negatives and drawings illustrating types of locomotives made by this company between 1832 and 1922. When these photographs are installed in the locomotive series, it is believed that the visitor will obtain a fairly comprehensive idea of this important subject.

The exhibit illustrating the development of the gasoline automobile was enriched through the gift of The Autocar Co., Ardmore, Pa., of an original full-size machine, designed by Louis S. Clarke and constructed in 1901. Its particular feature is that it is shaft

driven, as over against the chain drive. In the early days of the automobile industry in this country both the steam engine and the internal-combustion engine were experimented with as a source of motive power. One of the most successful of these steam-driven automobiles was that known as the "Locomotive," operated by a two-cylinder steam engine developed by Stanley. The division was very fortunate in receiving as a gift from Louis S. Clarke, Ardmore, Pa., one of these two-cylinder steam engines used in a Locomobile, about 1901. Inasmuch as the automobile truck is the latest development in the transportation of commodities overland, the division was pleased to be able to add to its series of models showing the improvements in this type of transportation two one-quarter size models of automobile trucks. These were presented by The Autocar Co., Ardmore, Pa.

*Metrology.*—The branch of metrology devoted to mechanical calculators was enhanced by the accession of a series of three machines to illustrate the successive steps in the development of the reversible crank type originally patented by F. S. Baldwin in 1875. This accession is the gift of the Monroe Calculating Machine Co., Orange, N. J.

During the course of the year the time-keeping collections were further increased by the gift of 27 gold and silver watches and watch movements, heretofore unrepresented in the Museum's collections. These were presented by George W. Spier, Chevy Chase, Md.

*Electrical engineering.*—From time to time in the past the division has succeeded in procuring objects visualizing improvements in the incandescent electric lamp. Through the gift of 94 incandescent lamps from the Edison Lamp Works of the General Electric Co., Harrison, N. J., it is gratifying to note that the division now has a complete series of incandescent lamps showing all the steps in the development of the Edison type, beginning with the original patent granted in 1879 and ending with the many varieties in use in 1922. Of this series, all are original lamps with the exception of the lamp first developed by Edison in his laboratory in Menlo Park, N. J., in October, 1879, and the model lamp submitted to the Patent Office when application for patent rights was made. These two lamps, however, have been accurately reproduced and form part of the collection.

#### PRESERVING AND INSTALLING COLLECTIONS.

One of the important features of the exhibits in the division of mineral technology is working models. The time spent by the preparator in maintaining these exhibits has been so great that it was considered advisable to make a study of the conditions in the hope of reducing the time element. As a result a number of mechanical

features were designed and incorporated in several of the models with such success that the preparator is enabled now to devote considerably more time to new work.

Because of the large amount of power consumed in operating the models, together with that of illuminating transparencies, a survey was made in an endeavor to determine what savings could be effected. As a result certain changes were made in the methods of illumination; changes were made also in the time schedule of the working models, resulting in the saving of 400 kilowatt-hours of power since February 1. As the exhibits now stand, they are all in excellent condition.

During the year in the division of mechanical technology a plan was evolved which in its realization will, it is believed, increase the instructive value of the collections. Briefly, it is to make the objects tell a story rather than merely represent a period in development; in other words, to increase both the atmosphere of the object and the data on the label so that a visitor will be impressed with the significance of the material rather than being reminded only of its existence. To this end, the division is combing over all the collections—stressing the important ones and placing each object where it will obtain the desired results. Together with reinstallation, the material is thoroughly repaired where necessary. Bad material is replaced; new bases made, if needed; mistakes in construction remedied; all with a view to in every way increase both the appearance and worth of the object. Briefly stated, efforts have been directed and realized as follows:

*Mechanical engineering.*—The various engines and machines have undergone thorough cleaning and repair, together with rearrangement. All of the various meters and instruments have received excellent care and are being further increased in value by explanatory labels.

*Electrical engineering.*—The interesting series of exhibits portraying the development of the incandescent electric lamp was brought up to date and rearranged. The telephone exhibits were rearranged and added to. Motors, meters, and all phases of electricity have received intelligent attention.

*Marine engineering.*—During the process of photographing the major part of the collection, all boats were repaired and cleaned, a thing much needed and which has made a decided improvement in the presentation of the exhibit. Several models received in unfinished or damaged condition have been made suitable for exhibition.

*Transportation.*—All exhibits connected with land transportation—manumotive, animotive, locomotive, and automotive—have received proper attention and have been enhanced by additions. The exhibit of automotive accessories has been placed in better relation

to allied subjects, as well as prepared in better manner for the instruction of visitors. All other exhibits have been grouped according to their motive power and chronological development.

In aerial transportation all exhibits have been so installed as to be readily studied by visitors. The development of aeronautics is fairly well represented by the objects now on exhibition, and the missing steps are being filled in by models made in the division's laboratory. It is planned to develop, by drawings exhibited in the swinging frames, a complete history of aviation and as rapidly as possible to substitute these by models. At this writing several excellent illustrations of historical aircraft pertaining to this development have been exhibited.

*Firearms.*—The exhibit of firearms received careful attention, as well as thorough cleaning. New accessions are treated upon receipt in a manner known to preserve them against rust or other injury. The history of artillery is being presented by a series of four models of ancient catapults, made in the division's laboratory, one of which is completed and on exhibition and forms the beginning of a branch of ordnance heretofore lacking in the otherwise complete collection.

*Metrology.*—The horological collection has been made particularly appealing to the public and has received constant commendation. Exhibits are placed in good light and in an instructive manner, as well as being kept in excellent condition.

As a whole, the collections in the division of mechanical technology are in well-preserved condition. Some collections are handicapped for lack of space or proper cases, but, as far as possible, this is being remedied.

#### RESEARCHES FOR THE BENEFIT OF THE MUSEUM.

Researches on the collections resulted in the publication during the year of two papers by the curator, the first a Catalogue of the Mechanical Engineering Collections of the Museum, published as Museum Bulletin No. 119, and the other an article on Watchmakers as Inventors, which appeared in the *Keystone* for June, 1922.

In the division of mineral technology all activities are preceded by special investigations relative to each particular mineral industry in an effort to compile sufficient data on the technology and economics involved in order to present it in an instructive manner to the lay public. In an endeavor to bring more to completeness the division's exhibits relative to the glass industry, Paul M. Frank, assistant curator, spent a large part of his time in a study of the plate glass, optical glass, and chemical glass phases of the industry. The writer, on the other hand, devoted as much time as he could find in preparing data and securing the needed cooperation for the preparation of an exhibit visualizing the manufactured-gas industry, and it is gratifying to report that the exhibit is already well

advanced and a drawing of the completed exhibit, together with text, prepared for free distribution.

Of the several branches of activities in the division of mechanical technology, that devoted to marine engineering, or naval architecture, more nearly approaches the ideal in thoroughness and completeness than any other. With the cooperation of the United States Fish Commission, this branch was brought to its present state many years ago, and a descriptive catalogue of the collections was begun by the late Capt. Joseph W. Collins. Believing that this catalogue should be completed, the writer spent the greater part of the year in studying the collection and preparing new data, rearranging and editing the data previously recorded by Captain Collins, and arranging the whole for publication as a bulletin. This manuscript, together with illustrations, was submitted for publication about April 1.

The special investigations begun last year by Paul Garber, aid, for the purpose of visualizing the developments in aeronautical engineering, were continued and resulted in the construction of a model of the aircraft proposed by Henson in 1840 and the beginning of another model of the aircraft proposed by Sir John Caley.

Toward the close of the year the division of mineral technology began work upon a model visualizing the manufactured-gas industry to be incorporated in the fuels exhibit. The Museum is indebted to Samuel S. Wyer, Columbus, Ohio, for securing practically all of the data necessary to carry forward this work, who had, in addition, the cooperation and advice of prominent individuals connected with the manufactured-gas industry.

The division of mechanical technology has received in times past incandescent lamps of undetermined origin and make and has received material help from Henry Schroeder, of the Edison Lamp Works of the General Electric Co., in identifying these objects, as well as other objects pertaining to electrical illumination.

NUMBER OF SPECIMENS IN THE COLLECTIONS.

During the year a complete inventory was made of the collections assigned to the division of mechanical technology, Museum catalogues as far back as 1876 being carefully examined and checked with the specimens. Of the 7,798 specimens in the division, it was found 5,813 are on exhibition, the remaining 1,985 being in the study series or storage.

	Division of mineral technology.	Division of mechanical technology.
Number of specimens received during the year .....	30	356
Total number of specimens in the collections at end of year .....	3,808	7,798

## REPORT ON THE DIVISION OF GRAPHIC ARTS.

By R. P. TOLMAN, *Assistant Curator.*

There is a certain satisfaction in knowing that the improvements in the division of graphic arts are following logical lines. This year the exhibits of printing and the reproductive arts have been almost entirely rearranged according to the plan approved in 1920. Historical and technical specimens are now together for the first time. Certain new material has added to the completeness of the exhibits.

Eighty-eight new accessions were received, being an increase of 30 over last year; but these numbered only 1,014 specimens, as compared with 2,296 for the previous year. There is usually power in numbers, and last year was a banner year, still this year's specimens are fully as important and valuable, considered from a scientific standpoint.

The most important individual gift was that of Dard Hunter, of Chillicothe, Ohio. It was a very comprehensive exhibit showing the sixteenth century methods of making type. The entire exhibit is the work of or was prepared by Mr. Hunter, who designed and cut the punches, struck the matrices, cast the type on a hand mold of his own make, set the type, and printed on a handpress two books on paper of his own manufacture. Last year the division received the paper exhibit and the two books and this year the type material. The combined material gives an excellent idea of the early methods of making paper and type. Mr. Hunter is now writing a book on the history of paper, which he will print from the same type and on his own paper, so that the entire book will be the result of his labors alone. Illustrated accounts of his work and the Museum exhibit have been published in many papers and magazines throughout the world, and his article on "Seventeenth century type making" in the *Quarterly Notebook* is a clear and brief description of early methods of type making. Mr. Hunter has just recently included an old composing stick, dated 1604, and a mold used in the famous Caslon foundry about 1750 in his other donations.

The Inland Printer, of Chicago, gave 12 portraits of famous ancient printers, which add something of historical interest to the collection.

Several fine old books were loaned by Earle W. Huckel, including the only specimen of incunabula in the collections of the division, Lockmayr's *Theology*, published at Hagenau in 1497. This loan included another early book, a beautiful example of printing, "*Missae Novae in Missali Romano*," published in 1696 by the famous printer Balthasar Moretus, and several old Bibles.

In the first century of the history of letterpress printing there was great beauty in the printed page, but in modern times little artistic work had been produced. To William Morris belongs the honor of reviving the interest in beautiful typography and presswork. He started a printing press in 1890 with the idea of making harmonious and beautiful books and published 53 volumes, each a gem. His ideas were based upon the best that had been done in the past. The books that he turned out were beautiful in every way; type, design, paper, and presswork, and the binding all came up to a high artistic standard. The division was fortunate in recently coming into possession of an excellent copy of "*The Well at the World's End*," by William Morris, published in the spring of 1896, the last year of Mr. Morris's life. The exhibits of letterpress printing should be nearly complete in another year, material showing modern methods of type making and the process of printing a newspaper having been promised. Exhibits of printing ink, hand-made paper, and early type making are already in place.

Several recent contributions have added materially to the educational and artistic value of the collotype exhibit. The Campbell Art Co., of Elizabeth, N. J., donated a technical series showing their method of printing in color, consisting of four plate-glass printing plates, progressive proofs, and the original water color by the English artist, Frank Wasley. They also donated several fine reproductions of paintings. Other excellent large examples of the process were received from Foster Bros., of Boston, and from the Medici Society of America (Inc.). Six small prints made in Vienna were donated by Rudolf Lesch, of New York City. All of these are equally fine and the best work being done to-day.

The principle upon which this method of printing is based was discovered and patented by Poitevin in 1855, but was not used extensively until about 1870. Albortype, autotype, artotype, heliotype, lichtdruck, indotint, and phototype are some of the names by which the work is known. Photogelatine is a name which is now coming into common use. The collotype process is purely a photomechanical method in which the printing is done directly from a gelatine film. There are no screens, acids, or engraving; the printing plate is prepared by exposing a bichromated gelatine, which is either on plate glass or metal, under a negative. This film becomes



insoluble in proportion to the amount of light allowed to strike it through the negative, and after slight treatment is ready to receive the printer's ink. A print from it gives all the tones and values of the original. Very accurate results are obtained, as the grain is very fine, and in color work where three or four plates are used is but slightly perceptible even under a magnifying glass. The plate has to be damped before it is inked, as in lithography, and is printed on a hand or power press as desired. The results obtained depend largely upon the quality of the negative. The retouching of the negative is the expensive part of the process, but when this is completed, the rest is mechanical. Burnishing, scraping, reetching, or retouching enter into the photomechanical processes, none of which are automatic, as the name might imply.

The entire collotype series has been rearranged and brought up to the standard of the other photomechanical exhibits through the courtesy of the above-mentioned firms. Of historical importance are the first prints to come to this country in 1866, made by Tessie du Motay, and numerous other specimens showing the work done in the last 50 years.

The other new accessions of importance will be mentioned in relation to the rearrangement to which a large part of the year has been devoted. This plan brought like specimens, both technical and historical, together for convenient study.

Photogravure was the first subject undertaken. The historical exhibit contains specimens covering almost a hundred years, from 1826 to 1922. The Museum fortunately owns a print from the original plate, which was the first recorded success of engraving by the aid of light, made in 1826 by Joseph Nicéphore Niepce. Fox Talbot and Paul Pretsch are well represented by their work done in the early fifties; one of Pretsch's original plates is included. There is an example by Mante, 1853, one by Niepce de St. Victor, 1856, and others. The original screen and a print, submitted by Gen. Frederick von Egloffstein in his patent application in 1865, covering the first successful screen process, are in this exhibit. There are many representative examples from 1870 down to the present, all fairly uniform in quality. A few fine examples are printed in color at one impression. Rotagravure work from 1894 to date is shown.

At the beginning of this year the halftone exhibit was deficient in the work of foreign countries. Upon request, several English firms supplied examples of their work. John Swain & Sons (Ltd.) and the Half Tone Engraving Co. (Ltd.), both of London, contributed about 25 specimens. The English work is quiet and artistic, while the American work is apt to be more brilliant. This is

shown by comparing English prints with a specimen from the Electro-Tint Engraving Co., of Philadelphia, "A Basket of Fruit," taken from the objects and giving a remarkably accurate representation of color and texture. It is very realistic, but not especially artistic, but shows very accurate work on the part of the engraver and printer. The Matthews-Northrup Works, of Buffalo, added 24 specimens of halftone work in color. These, with the work of several other companies, give a good idea of the quality of the work being done in this country at the present time. The historical exhibit extends from 1854 to date, Paul Pretsch's early relief prints probably being the first halftones. The series, however, is not as complete as it should be, and early specimens will be welcome. The technical series is in a more complete form, although little has been added this year.

A large and comprehensive exhibit of lithography has been installed showing the history of the process. This method is so different from the intaglio or relief methods that a brief history of its development may not be amiss in this report. It was discovered by Alois Senefelder about 1796-1798 and makes it possible to print from a perfectly flat surface. Stone was at first used and still remains the best surface to print from, although various metals are now much used. The picture desired is drawn on the smooth surface of the stone with a greasy crayon and is firmly attached with a solution of gum arabic and dilute nitric acid. It is then ready for the printer, who first wets the stone with water and then rolls it up with printer's ink. The ink is repelled by the moisture in the stone, sticking only to the greasy parts, therefore printing duplicates of the drawing in ink, but, of course, reversed. Another method is to make the drawing on paper, transferring it by pressure to the stone. In this way an exact facsimile of the drawing is obtained in printer's ink. The commercial shops have built up much mystery around this wonderfully simple and artistic process, and while, of course, care has to be exercised, as in all kinds of work, there are no mysteries about it. The inventor published a book in 1818 describing the process and about everything that has been rediscovered since, even to chromo work. Of course, such things as the adoption of power presses, offset printing, and photography were not known to him. The earliest print that the division owns dates from 1804; several early, rare, and historically valuable prints are by Senefelder himself. A plaster bust of Senefelder was given by The Fuchs & Lang Mfg. Co., of New York, and has been placed over one of the cases. Statues of other men who have advanced the graphic arts could be used to advantage in decorating the tops of the cases, as well as to show likenesses of the famous workers. Following the early prints, come examples by the famous workers in lithography

down to the present. The technical exhibits of this process are not very prepossessing, although they show the process. This will be changed as soon as opportunity offers. Two improvements were made this year; one, an exhibit made by the writer some years ago, showing a drawing on grained zinc, with proofs, was substituted for an old inartistic exhibit. The other was the addition of a new process of reprinting books without the aid of a camera and without splitting the sheets of paper. The "Manul" process, as it is called, was developed in Switzerland by the Polygraphic Co., who made a small exhibit consisting of a film, zinc plate, a print, and the original, which was a page of a Smithsonian pamphlet. The reprint is an exact facsimile. The technical cases of lithography have not been moved from the chapel, because there are as yet no cases to take their places.

The west end of the main hall now contains all the woodcuts, wood engravings, engravings, and mezzotints, with the technical specimens, the relief prints on the north side and the intaglio on the south. A photograph of Albrecht Durer's first woodcut, made in 1492, was obtained from Berlin. Howard C. Levis, the author, donated a small sixteenth century wood block and modern proofs from it. This is the only ancient block in the division. He also gave an original engraved wood block by Dr. Alexander Anderson, America's first important wood engraver, who was a follower of Bewick. This block is especially interesting, as it is a portrait of George Washington and because the original publication accompanies it—"The American Orator," by Increase Cooke, published by Sidney's Press for John Babcock & Son, New Haven, 1818. The National Gallery transferred 116 beautiful proofs of American wood engravings, all framed, from the Evans collection. Several have been used and add to the beauty of the exhibit. Courtney C. Allen, a Washington artist, contributed a series showing his method of printing from linoleum blocks. This includes the original drawing, the engraved block, and the finished print. This is an entirely new series.

At the south side of the main hall are to be found all the exhibits relating to intaglio engraving on metal. No important specimens have been added to this series, but several minor examples are included from Mr. Huckel's recent gift.

Improvements have been made in several series, as, for example, William H. Holmes has given two of his beautiful water colors and Franklin Booth has loaned one of his fine black-and-white drawings, which have raised the standard of the drawing and painting exhibit. It is the desire to secure the very best to improve the technical series and to complete the historical series. A list of the wants is given to show the needs of the division.

## WANTED.

Woodcuts prior to 1500.

Woodcut by Foster. The first woodcut made in America, about 1669.

Early European woodcut blocks.

Original blocks by Thomas Bewick and Alexander Anderson.

Mezzotints by Ludwig von Siegen and Prince Rupert.

Prints in color by Le Blond, Janinet, Debucourt.

Examples of the work called "Niello."

Etchings by modern Americans.

Fine examples of all the different processes.

Books printed prior to 1500.

Books printed by William Morris.

Exhibit of the methods of bookbinding, showing the steps a book goes through before it is ready for the library.

It is hoped this list will reach the attention of collectors willing to part with some of their treasures for the benefit of students of art and of printing.

The number of specimens received during the year was 740 in graphic arts and 274 in photography, making the total number of objects in the division 21,811.

A. J. Olmsted, custodian of the section of photography, makes the following report as to the collections under his charge.

## SECTION OF PHOTOGRAPHY.

The year 1921-22 has brought to the section of photography a notable collection of pictorial photographs from various parts of the world. This was the one subject toward which all efforts were directed. Thirty accessions were received, 10 more than last year. The total number of specimens, 324, however, was reduced to 274 by the return of a loan exhibit of 50 specimens.

Special mention will be made of the specimens of importance.

Floyd Vail, F. R. P. S., of New York City, has taken a great interest in the assembling of the pictorial collections, and their success is due largely to his efforts. Six of his artistic prints were received as a gift, and 50 others exhibited for two months, then forwarded to Chicago, Ill., to be exhibited there at the Camera Club. This one-man show was a welcome innovation, and it is planned to have others as loan exhibitions are available.

Alexander Keighley, of Steeton, near Keighley, England, is one of the few workers in carbon and has contributed seven of his prints to the exhibit. Mr. Keighley has a high standing among pictorialists. Leonard Misonne, of Gilly, Belgium, whose command of light and beauty of composition is of a high order, has shown five fine bromides. S. Bridgen, F. R. P. S., of Walthamstow, England,

made a very notable contribution of five prints. His treatment of mass is broad and his lighting is skillfully handled.

From Alexandria, Egypt, came four bromoils by J. H. Coatsworth. They are very beautiful and show Mr. Coatsworth's mastery of this difficult process. Three bromoil transfers were the gift of Fred Judge, of Hastings, England. These are the only specimens of this kind in the section and are doubly prized for that reason. Guido Rey, of Turin, Italy, is represented by some of his best work, which is fine in conception and execution.

In the portrait field there is some characteristic work by Angus Basil, of London, England, and Nickolas Muray, of New York. Both men put the stamp of originality on their work.

Malcolm Arbuthnot, of London, England, gave two charming prints showing his mastery of the pictorial.

From Holland were received six platinum prints by Richard Polak, showing in a delightful manner the old seventeenth century costumes and interiors. Mr. Polak is the fortunate possessor of a home of this character, and by his beautiful photographs passes its charm on to all.

J. Craig Annan, of Glasgow, Scotland, well known in the world of pictorial photography, has sent 12 prints, a number of which were taken in Spain, showing the remains of the Moorish conquest of that country.

Several pictorial bromides represent Charles Borup, of London, England, in portraits and figure studies.

Two prints, the gift of J. Arthur Lomax, of Cardiff, Wales, will take a high place in the collection.

The work of Louis Astrella, of Roxbury, Mass., shows high ideals and beauty of conception and is well represented in portrait, still life, and figure studies.

The pictorial collection is now a very important one, representing the best work being done to-day. The work of other artists will be sought, so that all pictorialists of renown may be represented.

Thomas A. Banning, of Chicago, Ill., continued his interest in the collections by sending five more McDonough color transparencies and one print made by this early method of color photography.

In an effort to demonstrate the need of a lens of wide aperture for portrait work, John Clacey, of Washington, D. C., furnished three framed portraits, the negatives of which were made with a 9-inch lens of his manufacture. The pleasing roundness and perspective in these pictures more than proves his point.

The accession of 42 autochromes, the gift of Maj. Murray Warner through Mrs. Gertrude Bass Warner, of Eugene, Oreg., was a notable addition to the color series. These transparencies were made

by Major Warner at the Panama-Pacific Exposition at San Francisco and preserve the wonderful color schemes used at that fair.

One hundred prints of snow crystals, the work of W. A. Bentley, of Jericho, Vt., make a valued addition to the technical side of the exhibits. These pictures of snow crystals by Mr. Bentley are used the world over in schools and colleges. The prints sent were selected from thousands made during a period of 30 years.

The two most beautiful ambrotypes in the collection were lent by Misses Helen A. and Elizabeth Olmsted, of Washington, D. C., and are old family portraits.

Framed portraits of George Eastman and Frank S. Noble, sent by the Eastman Kodak Co., of Rochester, N. Y., added to the group of early manufacturers of photographic material.

The World, Park Row, New York, a leader in the advancement of sending illustrative matter by wire, presented a very timely exhibit in the form of a portrait sent by wireless from Rome, Italy, to Bar Harbor, Me., by the method invented by Arthur Korn, of Berlin, Germany.

The total number of specimens in the collection of this section June 30, 1922, was 4,971, of which number 678 were duplicates.

With the installation of this year's accessions the plans set forth in last year's report will have been carried out. The coming year will see additions and a more complete showing of the development of the great motion-picture industry. A series of papers will be prepared dealing with the history of the exhibits, the accessions acquired in the past year, and on the aims of the collection that will be acceptable for publication in the photographic journals.

## REPORT ON THE LOEB COLLECTION OF CHEMICAL TYPES.

By F. L. LEWTON.

In the autumn of 1921 the two steel storage cabinets especially built to preserve the chemical type specimens were turned over to the National Museum by the Chemists' Club of New York City. New blank forms for recording the important scientific data concerning each specimen were printed and a number were sent to the members of the advisory committee, who offered to solicit specimens of chemical-type material for the collection. This committee, as now constituted, consists of Dr. C. L. Alsberg, Food Research Institute, Leland Stanford Junior University, Stanford University, Calif., chairman; Dr. Victor Lenher, University of Wisconsin, Madison, Wis.; James K. Senior, Cincinnati, Ohio; Dr. G. C. Spencer, representing the Bureau of Chemistry, United States Department of Agriculture; and the writer (F. L. Lewton), representing the National Museum and in charge of the collection.

A portion of the original material of each of seven new chemical compounds discovered and prepared in the division of chemistry, United States Department of Agriculture, were transferred to the National Museum, accessioned in the regular manner, and entered in the catalogue of the Loeb Collection of Chemical Types. Under the direction of Doctor Spencer, of the advisory committee, representing the Bureau of Chemistry, these specimens were placed in specially made glass tubes, which were then exhausted of air and sealed off in order to preserve for as long as possible the specimen in its original condition.

Dr. Oscar Hedenberg, of the Mellon Institute, Pittsburgh, Pa., was authorized to work up for the Loeb collection the original material representing the discoveries of the late Dr. John U. Nef, which is now in Doctor Hedenberg's hands.

With the assistance of Mr. Senior, of the advisory committee, agreements were made with the editors of the *Journal of the American Chemical Society* and the *Journal of Biological Chemistry* that advance notices of the publication of new chemical compounds in these journals would be sent to the Museum, in order that prompt solicitation could be made to the discoverer for his contribution of the chemical type material to the Loeb collection.

With facilities now at hand for properly caring for specimens of chemical-type material and with the many promises of specimens from many chemical investigators, it is hoped that a large number of additions may be made to the Loeb collection during the coming year.





## REPORT ON THE DIVISION OF HISTORY.

By T. T. BELOTE, *Curator.*

COMPARISON OF INCREMENT OF SPECIMENS OF 1921-22 WITH THAT OF 1920-21.

The amount of historical material received during the past year compares favorably with that received during the preceding year. While the number of accessions and specimens received is slightly smaller, the material received is more evenly distributed among the various sections of the division and is, on the whole, of more historical importance than that received during the previous year.

### ACCESSIONS DESERVING SPECIAL NOTICE.

As has been the case for the past few years, many of the important accessions for the fiscal year 1922 relate to the World War. In this connection the following interesting exhibits have been received: The American flag which, after receiving military honors in the Sorbonne in the presence of President Poincare, was flown with a French flag at the summit of the Eiffel Tower and saluted with 101 guns April 22, 1917, in celebration of the entry of the United States into the World War on the side of the Allies. This flag was presented by the French ambassador, M. Jusserand, to President Harding at the White House on Decoration Day, May 30, 1922, and deposited in the Museum through the War Department. A series of very handsome silk American flags presented to Gen. John J. Pershing in recognition of his services as commander in chief of the American Expeditionary Forces in France during the World War and lent by him to the Museum. This series includes a flag presented by the ladies of Chaumont, inscribed in gold, "Au Général en Chef des Armées Américaines. Les Dames de la Ville de Chaumont." The arms of the town are beautifully embroidered in the lower left-hand corner of the flag, and the tip of the staff is ornately inscribed "R. F." A second exquisitely decorated flag, presented to General Pershing in France is one inscribed as follows: "Le Dauphine Patrie de Bayard le Chevalier sans peur et sans reproche à l'Armée Américaine combattant en France pour la défense de la Justice et de la Liberté. Vaincre ou se soumettre!" The collection includes also a number of other American flags presented to General Pershing in France and a number of exceedingly handsome flags

presented to him in the United States. The latter include flags presented by the National Society of the Colonial Dames of America, the Grand Lodge of the State of Pennsylvania of the Sons of Italy in America, the city of Philadelphia, and the city of New York.

In the same connection may very appropriately be mentioned a series of the national flags of the nations which participated in the Conference on the Limitation of Armament, which met in Washington during the winter of 1921-22. These flags, representing the following countries, the United States, Great Britain, France, Italy, Japan, Belgium, the Netherlands, China, and Portugal, were installed in Continental Memorial Hall during the deliberations of the conference. These flags, which constitute a notable historical reminder of the conference, are of silk and measure 5 by 8 feet in size. They were received from Col. C. O. Sherrill, officer in charge of public buildings and grounds, and have been installed in a special wall case in the north hall of the Arts and Industries Building of the Museum in close proximity to other historical relics of national importance.

Of special interest in connection with the war collection is an illuminated acknowledgment presented by the Italian Government in recognition of the award by joint resolution of Congress, approved October 12, 1921, of the congressional medal of honor to the Italian unknown soldier whose body was buried at Rome with suitable ceremonies January 18, 1922. The certificate of acknowledgment was contained in an artistically designed leather case inscribed, "To the military mission of the United States of America during the presentation in Rome to the memory of the Italian unknown soldier of the congressional medal decreed by the Federal Government by act of October 12, 1921." The additions to the war collection of much historical and scientific value included two sectional relief maps of northern France, one made of papier-mâché and one of plaster. The first of these consists of eight sections, 22 by 27 inches in size, showing when united the territory bordering the British battle front from Dunkerque to Amiens. The second consists of 111 sections, each 19 by 25 inches in size, and showing the region of French front from Vermand to Courgenay in great detail. These two maps were presented by Marshal Haig and Marshal Petain, respectively, to the Hon. Medill McCormick and by him presented to the Museum.

A number of objects of exceptional interest relating to the World War were received from the United States Marine Corps. Of special importance in this connection is a relief map of the region about Belleau Wood, showing in great detail the surroundings of the first great engagement of the World War in which American troops participated on a large scale. The model is about 18 feet square. Highways, fields, forests, and villages are shown upon its

surface in a very graphic and striking manner. The original topographical map was made by a small party of officers and enlisted men of the United States Marine Corps, under the command of Maj. Charles D. Barrett, during the autumn of 1919, before the devastated region had been restored. Great care and accuracy were exercised in its construction; each house and town was sketched and modeled on the ground, and the result is an exact copy of the original dwellings as they existed during the engagement. The scale of the map is 1:1200, or 1 inch on the map represents 100 feet on the ground, the total area shown covering about 13 square miles. The Marine Corps has also lent to the Museum in the same connection six battle flags carried during the World War by Marine Corps units and a set of 12 uniforms, with decorations and accessories, 6 of which represent the commissioned officers and 6 of which represent the enlisted personnel of that organization.

The numismatic section of the war collection has been enriched by the addition of a set of the medals issued by the following States in recognition of service during that conflict: Delaware, Missouri, New Jersey, New Hampshire, New York, North Carolina, Oregon, Pennsylvania, Rhode Island, and Wyoming. These medals have been presented to the Museum by the States by which they were issued. Through the courtesy of the United States Commission of Fine Arts, Charles Moore, chairman, sets of the medals and decorations issued by the Governments of Belgium, Great Britain, Italy, and Portugal in recognition of services during the war have been received as the gift of the Governments mentioned. These include the following: The continental medal of 1914 and 1914-15, the overseas medal, the victory medal, and the mercantile marine medal of Great Britain; the military cross, the military medal, the war cross, the medal of the Yser, the commemorative medal, and the victory medal of Belgium; the cross of the Military Order of Savoy, the military valor silver medal, the war cross, the national gratitude medal, and the national commemorative medal of Italy; and the silver campaign medal, the war cross, and the victory medal of Portugal. A small but interesting collection of European coins issued during the war has been presented by Douglas N. Starr, and a collection of the most interesting types of paper currency issued in Germany during the same period has been secured by purchase.

The additions to the historical collections relating to periods other than that of the World War have been equal in every respect to those of this character received during the previous fiscal year. The biographical collections have been increased by a number of very valuable specimens, among which are the following: A sword carried by General Washington during the War of the Revolution, a gold-headed cane bequeathed to him by Benjamin Franklin, and a

dress sword carried by Maj. Gen. Andrew Jackson during the War of 1812-1815. The Washington sword, which is said to have been the one most frequently carried by the owner during the period mentioned, has a plain curved blade and a grooved ivory handle. This weapon was made by J. Bailey, of Fishkill, N. Y., and was bequeathed by the general to his nephew, Samuel Washington, whose son, Samuel T. Washington, presented it to Congress in 1844. The cane owned by Franklin and bequeathed by him to Washington was bequeathed by the latter to his brother, Charles Washington, and was presented to Congress by Samuel T. Washington at the same time as the sword described above. The sword owned by General Jackson was presented to Congress in 1855 by the family of Maj. Gen. Robert Armstrong, to whom it had been presented by General Jackson. These three objects of priceless historical value, connected as they were with three of the most notable personages of American history, were transferred to the custody of the National Museum from that of the Department of State by a joint resolution of Congress approved February 28, 1922. From the same department, by transfer, was also received during the past year the small writing desk used by Thomas Jefferson when he drafted the Declaration of Independence in Philadelphia in 1776, which bears a memorandum in his own hand attesting to the history of the desk and presenting the same to Joseph Coolidge, jr., in 1825, a pair of eyeglasses owned by Washington and presented by him to General Lafayette, the stem of a peace pipe smoked by Washington with an Indian chief in 1748, three buttons from the French court dress of Benjamin Franklin, and a gold medal studded with diamonds which was presented by the Sultan of Turkey to the President of the United States in 1892 in commemoration of the four hundredth anniversary of the discovery of America.

In addition to the objects already described, the biographical collections were enriched by the accession of a pocket compass owned by President James Monroe, lent to the Museum by Mrs. Rose Gouverneur Hoes; a number of personal relics of Maj. Gen. George B. McClellan, the gift of the Hon. George B. McClellan; and a collection of decorations, gold, silver, and bronze medals, awarded to David Edward Hughes in recognition of his scientific achievements, which includes the Order of the Iron Crown of Austria, the Order of Saint Michael of Bavaria, the Order of Leopold of Belgium, the Order of the Legion of Honor of France, the Order of Saint Maurice and Saint Lazarus of Italy, the Order of Saint Anne of Russia, the Order of Takova of Serbia, the Order of Charles III of Spain, and the Order of the Mejidieh of Turkey. The medals include the gold medal of the Society of Arts, Manufacture, and Commerce; the royal gold medal of the Royal Society, London; and the gold medal of the

Universal Exposition, Paris, 1867. This interesting collection was bequeathed to the Smithsonian Institution by Anna Chadbourne Hughes. An object of exceptional biographical interest received during the past year is a Japanese sword of honor which was presented by the Mikado to the Hon. E. Peshine Smith in 1875 in recognition of the latter's services in connection with the post of diplomatic adviser to the Japanese Government, which he filled from 1871 to 1876. The portrait collection of historical personages has been increased by the following specimens: A portrait of Joseph Priestley, by Albert Rosenthal from the original by Gilbert Stuart, which was presented to the Museum by the American Chemical Society; a portrait of Abraham Lincoln by W. Cogswell, the gift of Dr. George M. Kober; and a portrait of James Schouler, by Thomas C. Corner, lent by the American Historical Association.

The additions to the costumes collection during the past year include a costume worn by Mrs. Andrew Jackson, jr., the wife of the adopted son of President Jackson, on the occasion of a reception given in her honor at the White House in 1831. This most interesting relic of one of the mistresses of the White House has been lent by her daughter, Mrs. Rachael Jackson Lawrence, of the Hermitage Association.

The naval collections have been increased by the following interesting mementos of the early history of the Navy: The flag flown on the U. S. brig *Enterprise* during the action between that ship and the British ship *Boxer* off the coast of Maine, September 5, 1813, when the *Boxer* was captured after a short and bloody conflict in which both the American and British commanding officers were killed. This flag is one of the few colors in existence representing the design of 15 stars and 15 stripes, and the only other example of such a flag in the Museum is the Star-Spangled Banner. The flag of the *Enterprise* was presented to the Museum by George G. Quincy and Charles F. Quincy. A second naval relic of great interest received during the past fiscal year is the log book of the U. S. S. *Spark* during the period of 1819-20. One of the pages of this manuscript volume, which is the gift of I. B. Millner, bears the signature of Admiral David G. Farragut, written when he was a midshipman.

The numismatic material of the division has been increased by a number of valuable additions. Of particular interest is a series of United States commemorative coins, including the Pilgrim tercentenary half dollar issued 1921, the Missouri centennial half dollar issued 1921, the Ulysses S. Grant memorial silver half dollar and gold dollar issued 1922, the Alabama centennial silver half dollar issued 1921, all received as a loan from Douglas N. Starr. Mr. Starr has also added to his already exceptionally interesting collection of

such material in the Museum the following fine specimens of American coins: A Bechtler gold dollar, a gold quarter eagle issued 1907 and a gold quarter eagle issued 1908, a gold eagle issued 1907, two silver dollars issued 1921, one representing the old design and one representing the new design of that year.

To the collection of American decorations were added two examples of the bronze medal recently designed for presentation to officers of the United States Marine Corps who have been awarded brevet commissions for distinguished conduct and public service in the presence of the enemy. From the National Rifle Association of America, through Brig. Gen. Fred H. Phillips, jr., secretary of the association, was received an almost complete set of the medals, badges, buttons, clasps, and ribbons of the association. The collection of copies of scientific medals of award has been increased by the addition of replicas of the Mary Clark Thompson gold medal, awarded by the National Academy of Sciences to Dr. Charles D. Walcott for researches in geology and paleontology, and the gold medal awarded by that society to Dr. Charles Wardell Stiles for eminence in the application of science to the public welfare. These two medals have been lent by the National Academy of Sciences. A number of interesting and artistic commemorative medals have been received, among which are medals commemorating the following events: The centennial anniversary of the University of Virginia, 1919; the fiftieth anniversary of the founding of the Wisconsin Academy of Sciences, Arts, and Letters, 1920; the visit of Marshal Foch to the United States, 1921; and the sixtieth anniversary of the founding of the firm of John Wanamaker, 1921; the one hundred and fiftieth anniversary of the founding of the Royal Academy of Belgium, 1922; and the unveiling of a monument to Gen. José de Urquiza at Buenos Aires, 1920. Copies were also received of the gold medal presented by the school children of the United States to Marshal Foch, 1922, and of the medal issued by the Century Association and American Numismatic Society in commemoration of the career of Joseph Hodges Choate (1832-1917) and of the Kiwanis Club service medal, Pennsylvania district. From the American medalist, Adam Pietz, was received a collection of commemorative and decorative medals, plaques, and medalets designed by the donor. The collection includes portrait medals of Franklin, Marshall, Decatur, Lincoln, and Roosevelt.

During the past fiscal year, the philatelic collections have been increased by 5,074 specimens, consisting of recent foreign issues received by the Post Office Department from the Bureau of the International Postal Union, Berne, Switzerland, and transferred to the Museum by that department.

## WORK OF PRESERVING AND INSTALLING THE COLLECTIONS—PRESENT CONDITION OF THE COLLECTIONS.

During the past fiscal year every branch of the historical collections has received attention in connection with the work of preserving and installing the materials concerned. This has been rendered possible by the lull in the amount of material received during the past year as compared with that received in previous years in connection with the World War and, in the case of the philatelic material, by the appointment of a successor to Joseph B. Leavy, deceased, whose position as philatelist in the Museum was vacant from the time of his death, July 25, 1921, to January 3, 1922, when his successor, Mrs. Catherine L. Manning, was appointed. In every case the principal aim of the work in this connection has been to render the exhibition series more homogeneous in character, to reduce overcrowding, to improve appearances from the artistic point of view, and to protect the storage series from the incursion of moths and other destructive insects.

The most notable work in this connection as regards the antiquarian collections has been the installation of the John B. Copp collection of New England antiquities in a large wall case, three slope-top cases, and two floor cases on the west end of the west gallery of the Arts and Industries Building. The materials in this collection, which includes costumes, textiles, household ware, pictorial and printed material, have been classified and exhibited by classes in such a manner as to show the character of the exhibit as a whole at a glance, and also to render the individual portions of the collection available for close inspection and study. This is one of the most complete and interesting collections of the kind in existence, and the present arrangement is the most satisfactory one devised for its exhibition since its presentation to the Museum in 1894. Other portions of the antiquarian collections have been reinstalled, and special attention has been devoted to the cleaning of this class of material.

Many of the biographical collections have been completely reinstalled, and all have been thoroughly cleaned and renovated. Of special interest in this connection has been the installation in a single case of the relics of Capt. Edward Trenchard, United States Navy (1784-1824), and Rear Admiral Stephen Decatur Trenchard (1818-1883). The David Edward Hughes collection of decorations and medals have been given a special installation, and other biographical collections have been suitably installed.

The overcrowded condition of the costumes hall has precluded a complete rearrangement of this hall, which is very much needed. This is particularly true in connection with the textiles and dresses installed in the wall cases, nearly all of which are very much over-

crowded. The only remedy for this condition is the assignment of a larger hall for this collection or the removal of some of the less important exhibits to make room for the more important ones. During the past fiscal year a new figure has been installed in the series bearing the dresses of the mistresses of the White House for the exhibition of the dress worn by Mrs. Andrew Jackson, jr.

Notable progress has been made during the past year in connection with the installation and preservation of the military collections. Exceptionally large and important additions have been made to the floor space, both for exhibition and storage space. The number of exhibition cases has been increased by the addition of 14 standard-sized wall alcove cases and 6 remodeled Jamestown slope-top cases. These have been installed in the gallery of the southeast range of the Arts and Industries Building, one-half of which has been assigned to the division of history and one-half to the division of medicine. The two spaces have been divided by a partition which will serve for the installation of wall cases or of pictorial material. This additional exhibition hall is not yet in condition to be opened to the public.

The storage facilities of the division have been improved by the erection of standard storage racks against three walls of a large room on the east side of the Arts and Industries Building. These racks have been utilized for the storage of the collection of uniforms of the United States Army for which exhibition space is not at present available. The storage series in other locations have been thoroughly overhauled and inspected.

The collection of American historical medals has been installed in a series of slope-top cases along the north wall of the northwest range of the Arts and Industries Building. These cases are exceedingly well adapted to an installation of this character, and it is proposed to include with the American medals a series of European medals at an early date. The collection of foreign war decorations, relating for the most part to the period of the World War, formerly installed in two cases in the Natural History Building, has been reinstalled in four cases in the same location. This change has afforded an opportunity for a logical scientific arrangement, which was formerly lacking on account of lack of necessary space, and also has enabled the various units of the collection to be installed with suitable intervening spaces, a condition essential to the artistic appearance of the collection as a whole. A number of other changes have been made in the installation of the historical collections in the Natural History Building with a view to rendering this exhibit more homogeneous in character. A single slope-top case in the coin and medal hall in the Arts and Industries Building has been devoted



to the exceptionally fine collection of the United States gold and silver coins lent by Douglas N. Starr. A notable work in this connection has been the mounting on boards of the British Museum collection of electrotypes of ancient Greek and Roman gold and silver coins. This collection, which had not previously been satisfactorily installed on account of a lack of room, will now be arranged for exhibition purposes in accordance with the exhibit in the British Museum, which affords an opportunity for the study of the development of the ancient coinages both from the point of view of history and art, the two most important phases of this subject.

During the past fiscal year a complete reinstallation of the philatelic material in the exhibition cabinet has been initiated. This was rendered necessary by the additions to the cabinet described in the last annual report, by the magnitude of the recent issues of stamps, and by the decision to unite all the stamps belonging to a single country, whether issued during the nineteenth or the twentieth century. Owing to the growth of the collection, the decision was also reached to change the geographical arrangement of the countries, tentatively adopted when the stamps were first installed, to a strictly alphabetical arrangement. The latter will, it is felt, render the exhibit more accessible to the average collector and increase the ease with which individual specimens can be located. In accordance with this scheme the stamps of the United States have been installed as a unit on the west end of the cabinet, and satisfactory progress has been made in connection with the work of installing the foreign stamps in accordance with the new arrangement which, it is hoped, will be completed during the coming fiscal year.

Much has also been accomplished in connection with the installation and the preservation of the war collection. Efforts have been made to render the exhibits relating to the recent conflict more homogeneous in character and to preclude any damage or deterioration of those portions of the collection in storage. With these objects in view, many of the war exhibits in both the Arts and Industries and the Natural History Buildings have been entirely reinstalled and the storage materials thoroughly inspected.

#### RESEARCHES.

The work outlined under this head in the previous annual report, as indicated there in connection with the reclassification of the records of the division, has been practically completed. The division, as the result of this undertaking, now possesses—with a few exceptions—a complete record of all the materials in its care. These records represent original work in this connection and will form the basis for all future undertakings of this character and for any published catalogue of the collections which it may become feasible

to issue. Four articles by the curator have been published in the *Daughters of American Revolution Magazine* during the year on war medals of the American Revolution, military and naval medals of the War of 1812-1815, naval medals of the United States, 1800-1815, and military medals of the War with Mexico and the Civil War.

The usual number of inquiries concerning the historical materials have been received and much information along this line has been furnished for the benefit of researches in historical museum material in other fields. In many instances the data furnished has been accompanied by photographs of objects connected with the work under discussion.

NUMBER OF SPECIMENS IN THE DIVISION.

The number of objects received by the division of history during the year was 6,455. This brings the total of specimens in the care of the division on June 30, 1922, up to 293,054.

## LIST OF ACCESSIONS TO THE COLLECTIONS DURING THE FISCAL YEAR 1921-1922.

(EXCEPT WHEN OTHERWISE INDICATED, THE SPECIMENS WERE PRESENTED OR WERE TRANSFERRED BY BUREAUS OF THE GOVERNMENT IN ACCORDANCE WITH LAW.)

- ABBEY, Miss JULIA, New York City: Basket of the Modoc Indians of California, 1873, and 3 scrapbooks on the Modoc War, 2 made by Henry G. Abbey, who went out in 1873 with Leonard Case, of Cleveland, Ohio, and 1 by Mr. Case (67393).
- ABBOTT, Mrs. G. I., Oswego, N. Y.: 16 plants from the United States (67136).
- ABBOTT, Dr. WILLIAM L., Philadelphia, Pa.: Bag made of palm and sisal, found at Petionville, Haiti (67099); about 3,500 plants, 39 birds, 4 skeletons, a bird's nest and a bird in alcohol, 19 bats, skeleton of a bat and a bat (alcoholic), a solenodon, about 304 mollusks, 3 earthworms, 3 invertebrates, 10 scorpions, and 2 myriapods, collection of insects, 2 fishes, 2 frogs, and a collection of 18 archeological specimens, all from Santo Domingo (68183, 68361, 68447); 354 mammals, 105 birds, 26 reptiles, 10 lots of fishes, 7 ethnological specimens, 1 shell, insects, and marine invertebrates, collected by Mr. Charles M. Hoy in Australia (68436).
- ACADEMY OF NATURAL SCIENCES, Philadelphia, Pa. (through Dr. H. A. Pilsbry): 2 photographic negatives of rare crabs in the museum of the Academy of Natural Sciences (66817); (through Dr. Henry Skinner) 80 specimens of Cynipidae, representing 13 species (66867, exchange).
- ADUTT, ALBERT LEON, Margate, Kent, England: Sheet of 16 Margate Cottage Hospital Extension Fund stamps (67908).
- AGRICULTURAL RESEARCH INSTITUTE, Pusa, Bihar, India (through T. Bainbridge Fletcher, imperial entomologist): 400 specimens of small moths, Microlepidoptera, including 200 species and cotypes (68300).
- AGRICULTURE, DEPARTMENT OF: *Bureau of Biological Survey*: 14 skeletons and 93 alcoholic specimens of birds, 7 fishes, 2 amphibians, 3 reptiles, and 1 turtle shell, 15 mollusks, 2 crayfishes, and 11 specimens of fossilized wood from South America (66776); 16 skeletons and 1 skull of birds from Alaska and California (66777); 3 skeletons, 3 skulls, 1 nest, and 2 eggs of birds from Florida (66844); 178 South American plants, collected by Dr. Alexander Wetmore (66861); 48 plants collected by Dr. Wetmore in Argentina (66986); 4 specimens of the last larval stages of *Xiphosura polyphemus* and 20 specimens of *Artemia gracilis*, var. *arietina*, the latter collected by Dr. Wetmore in Argentina (68475); (through W. L. McAtee) 3 land crabs, collected at Miami, Fla., by J. S. Rainey (67020); 30 fishes collected by Francis Harper in the Athabaska Lake region, Alberta, Canada, in 1920 (67359); 89 amphibians and 12 reptiles collected by Dr. W. P. Taylor and G. G. Cantwell in Washington (67421); 199 specimens, 13 species, of mollusks and 21 species of fresh-water

AGRICULTURE, DEPARTMENT  
OF—Continued.

*Bureau of Biological Survey*—Con. mollusks from Minnesota (67502, 67936); skin and skeleton of a porpoise from Alaska (67521); 38 plants from Alaska and Canada (68007); 33 alcoholic specimens and skeletons of birds, 12 nests, and 129 eggs (67779); (through Bureau of Entomology) 494 specimens, representing 111 species, of insects of various orders (67806); 8 specimens, 7 species, of Pleistocene mollusks collected by Charles Sheldon on Johnston Mountain in the Sierra Seri near the coast of Senora, directly opposite Tiburon Island, at an elevation of about 5,000 feet; also a plant collected by Mr. Sheldon on Tiburon Island (67855, 67911); 1,075 specimens of miscellaneous named insects (68152); 344 plants (68248); 179 frogs, snapping turtle, and mollusks collected in Minnesota by Franklin P. Metcalf and W. F. Kubichek (68250); 2 specimens of willow withes used by the Indians in the tributaries of the Upper Tanana River, Alaska, for binding together wooden fence rails for turning migratory caribou that they may more readily be killed (68407); 1,532 mammals transferred by the Biological Survey between July 1, 1921, and June 30, 1922 (68444).

*Bureau of Chemistry* (through Dr. Frederick B. Power): 127 specimens of essential oils and related substances (67567); 5 specimens of original chemical substances, consisting of *n*-octoyl vanillyl amide, 5-2-4-lead arsenate  $Pb_3(PbOH)_2(AsO_4)_4$ , mono lead orthoarsenate  $PbH_4(AsO_4)_2$ , tri-lead orthoarsenate  $Pb_3(AsO_4)_2$ , lead metarsenate  $Pb(AsO_3)_2$ . These specimens constitute the first ex-

 AGRICULTURE, DEPARTMENT  
OF—Continued.

*Bureau of Chemistry*—Continued. amples of original chemical substances to be included in the Loeb Collection of Chemical Types (67682); a portion of the original material of two new chemical compounds prepared by Max Phillips in the color investigation laboratory at Arlington Farm, Va. (68429).

*Bureau of Entomology* (through James Zetek, Ancon, Canal Zone): 133 mosquitoes (67013); 2 specimens of planarians (flat worms) found on the ground at the base of a coconut palm at San Juan, P. R., by G. N. Walcott (67082); 28 specimens of Mexican fly received from Dr. A. L. Herrera, Mexico, Mexico (67386); 6 land shells from San Antonio, Tex. (67541); 7 specimens of isopod crustaceans collected by E. E. Blanchard, of Buenos Aires (67943); 25 Helicid mollusks from Santo Domingo and Porto Rico (68137); 6 mollusks from Ontario, Calif. (68369); a collection of miscellaneous insects (6206 specimens) received at various times during the fiscal year July 1, 1921, to June 30, 1922 (68472).

(See also under Agriculture, Department of, Bureau of Biological Survey, Dr. Paul Marchal and Shonosuke Nakayama.)

*Federal Horticultural Board*: 7 specimens, 4 species, of isopods (66826); mollusk from Tanamo, Cuba (66827); snail found in bananas from Port Antonio, Jamaica; slug from Port Antonio; land shell and two sowbugs from Port Antonio; and a lizard found in a cargo of bananas from Port Antonio, Jamaica, collected at Baltimore, Md., by Inspector Charles E.

AGRICULTURE, DEPARTMENT  
OF—Continued.*Federal Horticultural Board*—Con.

Prince (66945, 67351, 68406, 67772); spider (66949); 2 specimens of earthworms from soil around *Aspidistra* plants from Liverpool, England, and a snake found in a banana cargo from Tela, Honduras, collected at Philadelphia, Pa., by Inspector Max Kisiluk (67358, 68917); 9 specimens, 2 species, of land and fresh-water mollusks taken in earth and sphagnum about plants from Madras, India (67413); 5 specimens, 4 species, of land and fresh-water mollusks found in soil around palms in pots from Calcutta, India, collected at Philadelphia, Pa. (68231); lizard found in a cargo of bananas from Jamaica (67445); gecko taken from logwood from Jamaica at Philadelphia, Pa. (68175); gecko from Puerto Castillo, Honduras, and 3 land shells from Bowden, Jamaica (68411); lizard found in a shipment of bananas from Tela, Honduras, by C. E. Prince, Baltimore, Md. (67771); mollusk, collected in Philadelphia, Pa., in banana rubbish from Tela, Honduras (68024); 4 mollusks collected at Philadelphia, Pa., in soil and dirt ballast from Naples, Italy (68037); specimen of isopod found on an old log in the vicinity of Bamboo Station, 13 miles southwest of Savannah, Ga., by H. L. Sanford, February 8, 1922 (68068); 3 land shells said to have come from Port de Platte, Haiti (68179); lizard found in a bunch of banana rubbish from Guatemala (68210).

*Forest Service*: 8 specimens of amphipods from piling from Pensacola Harbor, Fla. (67334); (through W. R. Chapline) 5 plants from California and

AGRICULTURE, DEPARTMENT  
OF—Continued.*Forest Service*—Continued.

Washington (68047); plant from Arizona (68086).

(See also under American Enamel Co., American Handle Co., Crandall Bros., the J. B. Hellenberg Co. (Inc.), Jenkins & Bogert Manufacturing Co., Horatio Kelsey (Inc.), Newton & Thompson Manufacturing Co., Oldtown Realty Co., and Warren Novelty Co.)

*Bureau of Plant Industry*: 7 fragmentary plants and 10 photographs, chiefly of type specimens; also, through Dr. S. F. Blake, 21 photographs and 20 fragmentary specimens of plants, chiefly types (66782, 68015); plant from Mexico (66807); fragmentary specimen of plant from Utah (66825); 2 plants from Washington (66881); 214 plants collected in Montana and Wyoming by E. O. Wooton (66893, 66984, 67023, 67145); 6 specimens of rusts collected by Mr. Wooton in Arizona and California (67525); 2 plants collected in Arizona by Dr. H. L. Shantz (66894); 277 specimens of grasses collected by Dr. Shantz in Africa (67670); 10 plants collected in Maryland by Dr. Frederick V. Coville (66957); 36 plants (66983, 67744, 67761, 68151, 68229); 3 plants from New York (67065, 67065, 67319); 59 specimens of mosses and plants collected by Wilson Popenoe in South and Central America (67081, 67825, 67977); 2 plants from Mexico and 2 photographs of Mexican plants (67132); 2 specimens of pickereringite collected by F. B. Headley near the Lahontan Reservoir, about 15 miles west of Fallon, Nev. (67192); 1,050 mounted specimens of grasses

AGRICULTURE, DEPARTMENT  
OF—Continued.

*Bureau of Plant Industry*—Contd.

- from various sources (67227); plant from Cuba (67241); plant from Mississippi (67242); plant from Ohio (67320); 6,000 plants collected chiefly in Nevada, Utah, and California by I. Tidestrom (67363); 302 plants from Maine and Florida, collected by W. E. Safford (67740); plant from Panama, collected by David Fairchild (67526); (through Mrs. Agnes Chase) plant from California (67624); 60 plants collected in Mexico by G. N. Collins and J. H. Kempton (67632); (through W. W. Stockberger) plant from British Honduras (67706); 4 plants from California, collected by Prof. O. F. Cook (67786); 12 plants from the United States, collected by C. V. Piper (67795); 4 plants from South America (67804); 8 plants from California (68067, 68099); plant from Argentina (68091); 33,750 plants (about three-fourths of the private herbarium of Dr. Otto Buchtien, La Paz, Bolivia) (68126); 2 ferns from Texas (68174); 350 insects, 1 peripatus, and a collection of shells (68205); plant from Missouri (68287); 2,000 specimens of grasses collected in eastern Asia by A. S. Hitchcock (68328).
- States Relations Service*: 8 colored bromide enlargements illustrating processes in canning fruits and vegetables by the cold-pack method (67399).
- ALBERTA, UNIVERSITY OF, Edmonton, Alberta, Canada: Fossil turtle from Belly River formation, Upper Cretaceous, Canada (67845, exchange).
- ALDRICH, Dr. J. M., United States National Museum: 8 flies, including types of 5 species (67546).

ALEXANDER, Brig. Gen. ROBERT, U. S. Army, Madison Barracks, N. Y.: A two-handled vase and 2 copper bells from a grave mound in the vicinity of San Joaquin, Chihuahua, Mexico (66805).

ALFARO, Dr. A., Museo Nacional, San Jose, Costa Rica: 157 specimens of mosquitoes, grasshoppers, and other insects, and 2 land mollusks (67870).

(See also under Museo Nacional, San Jose, Costa Rica.)

ALLEE, Prof. W. C., University of Chicago, Chicago, Ill.: 5 specimens, 2 species, of crustaceans (67191).

ALLEN, C. C., St. Petersburg, Fla.: 199 specimens, 38 species, of mollusks from the Bahamas and Florida (68102).

ALLEN, COURTNEY C., Washington, D. C.: Engraved linoleum block and 3 prints from it, entitled "Off for the Wiers"; also a linoleum print entitled "Frisky"; original drawing by the donor for linoleum block printing (67847, 67910).

AMERICAN ANTIQUARIAN SOCIETY, THE, Worcester, Mass.: A pamphlet entitled "The Portraits of Isaiah Thomas, with a Genealogy of His Descendants," by Charles Lemuel Nichols (67489).

AMERICAN BALSAM CO. (INC.), Long Island City, N. Y.: 3 samples of balsa wood (67931).

AMERICAN CHEMICAL SOCIETY (through its president, Dr. Edgar F. Smith, University of Pennsylvania, Philadelphia, Pa.): Portrait of Joseph Priestley, copied by Albert Rosenthal from the original by Gilbert Stuart (67389).

AMERICAN ENAMEL CO., Providence, R. I. (through U. S. Department of Agriculture, Forest Service, Washington, D. C.): 34 specimens of umbrella handles mounted on two panels (68504).

AMERICAN GEM AND PEARL CO., New York City: Yellow topaz from Brazil (7.4 carats) (68230).

- AMERICAN HANDLE CO., Jonesboro, Ark. (through U. S. Department of Agriculture, Forest Service, Washington, D. C.): 5 specimens of ax and hammer handles of white hickory (68516).
- AMERICAN HISTORICAL ASSOCIATION, Washington, D. C.: Oil portrait of James Schouler, American historian (66851, loan).
- AMERICAN MUSEUM OF NATURAL HISTORY, New York City: 28 bird skins from Peru (67068, exchange); 2 cotypes of flies (68069); cast of the type of the fossil bird, *Corvus annectans* (68158); spiny lobster from the southeast coast of Florida (68351, exchange); 100 specimens of vespid wasps, representing 51 species (68414).
- AMERICAN OSTEOPATHIC ASSOCIATION, Orange, N. J. (through Dr. Norman C. Glover, Washington, D. C.): Model of an osteopathic treatment table, one-quarter size, and a photograph (68462).
- AMERICAN RELIEF ADMINISTRATION, New York City: 30 photographs, 3 charts, and printed documents illustrating the work of the American Relief Administration in feeding Austrian children by means of the European Children's Fund (67854).
- AMERICAN THERMO-WARE CO. (INC.), New York City: 2 colored anatomical manikins (67856).
- AMERICAN WALNUT MANUFACTURERS' ASSOCIATION, Chicago, Ill.: 13 photographs showing the manufacture of American walnut veneers; also 3 panels showing types of American walnut veneer (66973, 68198).
- (See also under American Wood Rim Co., George W. Hartzell, Hartzell Walnut Propeller Co., Penrod Walnut & Veneer Co., Pickrel Walnut Co., Winchester Repeating Arms Co., and Wood-Mosaic Co. (Inc.).)
- AMERICAN WOOD RIM CO., THE, Onaway, Mich. (through American Walnut Manufacturers' Association, AMERICAN WOOD RIM CO., THE—Continued.  
Chicago, Ill.): An all-wood black-walnut automobile steering wheel, Cadillac type (68199).
- AMES, OAKES, Boston, Mass.: Orchid from Trinidad (66879); 273 specimens and 22 illustrations of orchids from the Philippine Islands (67501, 67508, 67713, 67758, exchange); 12 photographs of orchid types (67778, exchange); 13 illustrations of orchids (68083, exchange).
- ANDERSON, J. P., Juneau, Alaska: 2 plants from Alaska (67084).
- ANDREWS, GARNETT, Rossville, Ga.: Baked pottery whistle in the form of a crouching figure (68355).
- ANHEUSER - BUSCH (INC.), St. Louis, Mo. (through Herman J. Walz, manager P. T., Washington Branch, Washington, D. C.): Lithograph copy of the painting entitled "Custer's Last Fight," presented to the Seventh Regiment United States Cavalry by the Anheuser-Busch Brewing Association (68310).
- ANNAN, J. CRAIG, Glasgow, Scotland: 12 photogravures (67327).
- ANTISELL, TONER, Rocky Mount, Va.: Sample of chloropal from Franklin County, Va. (67102).
- ARBUTHNOT, MALCOLM, London, England: 2 pictorial bromide prints (68324).
- ARCHAEOLOGICAL SOCIETY OF WASHINGTON, THE, Washington, D. C., Dr. Mitchell Carroll, secretary and director: 497 specimens from graves in prehistoric habitations in the Casas Grandes district, Chihuahua, Mexico, including earthenware vessels, stone implements, shell beads, and ornaments (67785, loan).
- ARMSTRONG, E. J., Erie, Pa.: 700 specimens of Devonian fossils from eastern Canada and an exhibition slab of Devonian sponges from western Pennsylvania (67344).
- (See also under Ball Engine Co.)
- ARVIDSON, KARL A. (See under Photogravure & Color Co.)

- ASPINWALL, F. E., La Grange, Ky.: Specimen of living cactus (68062).
- ASTRELLA, Louis, Roxbury, Mass.: 6 pictorial photographs (67272).
- ATLAS PORTLAND CEMENT CO., New York City: 4 transparencies illustrating important uses of Portland cement (68155).
- AUSTEN, Major E. E. (See under British Government, British Museum, Natural History.)
- AUSTRALIAN INSTITUTE OF TROPICAL MEDICINE, Townsville, North Queensland, Australia (through Dr. Gerald F. Hill): 333 specimens of Australian named insects (67121, exchange); 15 Australian flies and beetles (67713); 52 tropical flies (68078); 288 tropical insects (68292, 68455).
- AUSTRALIAN MUSEUM, Sydney, Australia (through Frank A. McNeill): 7 specimens of crabs, *Micthyris brevidactylus*, excavated from mud flats, 3 of them from Endeavour River estuary, Cooktown, Queensland, collected by A. R. McCulloch in 1918, and the other 4 from Trial Bay beach, New South Wales, Australia, collected by A. Kinghorn, February, 1921 (68303).
- AUTOCAR CO., THE, Ardmore, Pa.: gine, sectioned and operated; two one-fourth size models of automobile trucks with fixed and tilting Full-sized gasoline automobile, 1901; full-sized gasoline automobile end-body, respectively (68520).
- AZTEC CLUB OF 1847, Washington, D. C. (through Col. J. F. Reynolds Landis, U. S. Army (retired), secretary): Silver centerpiece representing in design an Aztec teocalli, which was presented to the Aztec Club of 1847 in 1892 by Col. De Lancey Floyd Jones (67889, loan).
- BACKER, C. A., Buitenzorg, Java: Plant (67199).
- BAER, JOHN L., U. S. National Museum: Archeological material collected along the Susquehanna River, Pa. (66831); series of 9 specimens illustrating the development of the bannerstone, 2 quartz hammerstones, and an abrading stone (67349, exchange); series of 93 white quartz blades, part of a cache of 150 found near Pen Mar, Pa. (67757); granite plummet found at Canterbury Plains, Conn., some years ago by Rev. G. A. Ogg (67900); 4 argillite and 5 quartzite blades from caches found near Peach Bottom, Pa. (68317).
- (See also under Miss Mary Howard Bayly.)
- BAILEY, H. B., Miami Beach, Fla.: 170 beetles and 2 shells (in alcohol) (68142, 68384).
- BAILEY, Prof. L. H., Ithaca, N. Y.: 2 plants from California (66834); fern (67007); 8 plants and 5 photographs of plants (67384, 67465); 44 plants from Venezuela (68207); 2 ferns (68279, exchange); cultivated plant from Trinidad (68288, exchange); 12 specimens and 2 photographs of ferns, mainly from Barbados (68311, exchange); 26 specimens and 2 photographs of ferns from Dominica (68488, exchange).
- BAKER, Prof. C. F., College of Agriculture, Los Baños, P. I.: 44 specimens of Hymenoptera, including types of Cynipidae and Serphoidea described by Messrs. Weld and Fouts (66976); 5 specimens of Hymenoptera, representing a species of cynipid and 2 species of trigonalids new to the Museum collections (67134); 25 specimens, 20 species, of land shells from Mindanao, P. I., including the types of 2 new species and 9 new subspecies (67642); 29 specimens, 8 species, of land and marine mollusks, including the types of 1 new species and 1 new subspecies, all from the Philippines (67654); 20 specimens, 14 species, of land shells from Sibuyan and Mindanao (68364); cuttle-fish shell from the east coast of Polillo, P. I. (68439).



- BALDWIN LOCOMOTIVE WORKS, THE**, Philadelphia, Pa.: A series of 71 photographs, photostats, and blue prints visualizing the development of the steam locomotive in the United States from 1832 to 1920 (68305).
- BALESTIER, BEATTY SMITH.** (See under Mrs. Josephine Balestier Dunham.)
- BALL, Dr. C. R.**, Bureau of Plant Industry, U. S. Department of Agriculture, Washington, D. C.: 13 plants from Indiana, also 21 plants from Washington, collected by W. N. Suksdorf (66969, 68075).
- BALL, Prof. O. M.**, Agricultural and Mechanical College of Texas, College Station, Tex.: 12 specimens, chiefly types, and a block showing several forms of fossil plants (67318); 8 specimens of fossil plants, representing 4 species, from the Fayette of Brazos County, Tex. (68433).
- BALL, Prof. STANLEY C.**, Bernice Pauahi Bishop Museum, Honolulu, Hawaii: 3 specimens of a plant from Oahu (67732).
- BALL ENGINE CO.**, Erie, Pa. (through E. J. Armstrong): 2 antiquated steam-engine indicators (68187).
- BALLARD, JACK**, Graysville, Tenn.: 2 beetles (66941).
- BANNING, THOMAS A.**, Chicago, Ill.: 5 McDonough color transparencies and 1 McDonough color print (67026, 67513).
- BARBER, H. S.**, Bureau of Entomology, U. S. Department of Agriculture, Washington, D. C.: Snake from Chevy Chase Lake, Md., taken from the stomach of a bullfrog (67208); leech from a pond on the Maryland shore, near Plummer Island (67237); 2 specimens of leeches found on the Maryland shore of the Potomac River, near Plummer Island (68283); specimen of leech collected by the donor at Plummer Island, Md. (68517).
- BARBER, MANLY D.**, Knoxville, Tenn.: 233 specimens, 11 species, of fresh-water shells from Tennessee, Kentucky, and Illinois (66815).
- BARNARD, Mrs. E. C.**, Washington, D. C.: 8 specimens, 7 species, of sea shells (67690).  
(See also under Joseph M. Rogers.)
- BARNARD, Dr. H. K.** (See under South African Museum.)
- BARNES, Dr. WILLIAM**, Decatur, Ill.: 74 specimens, 54 species, of Lepidoptera, chiefly cotypes and paratypes; also 512 specimens, 75 species, of moths, microlepidoptera (66813, 67816).
- BARTLETT, ALBERT D.**, Anacostia, D. C.: Specimen of the great horned owl from Maryland (67166).
- BARTSCH, Dr. PAUL**, U. S. National Museum: Bat (alcoholic) from the Smithsonian grounds; also the skin and skull of a squirrel from Bass Lake, Ill. (67253, 68011).
- BASDEKIAN, ALBERT G.**, Washington, D. C.: 30 bronze (copper) and silver coins and 1 enameled medallion (67443, loan).
- BASIL, ANGUS**, London, England: 5 photographs, (67230).
- BASSLER, Dr. R. S.**, U. S. National Museum: 25 land shells from Gordonville, Tenn. (68507).
- BAUER, Dr. L. A.** (See under Carnegie Institution of Washington.)
- BAXTER, M. S.**, Rochester, N. Y.: 19 plants from New York (67667, exchange).  
(See also under Rochester Academy of Science.)
- BAYLY, Miss MARY HOWARD**, Washington, D. C. (through John L. Baer): Carving of a buffalo, in catlinite, excavated in Bedford Springs, Pa., about 1850 (67619).
- BEACH, WILLIAM H.**, Seneca Falls, N. Y.: Powder horn, photograph of the "Beach House" at Stratford, Conn., and a spinning wheel (67715).

- BEAN, BARTON A., U. S. National Museum: 133 fishes collected in the vicinity of College Park, Md.; also 28 fishes, 3 frogs, 5 tadpoles, 5 crayfishes, and 7 insects, collected in Paint Branch at College Park (61774, 68220).
- BEAN, BARTON A., and EARL D. REID, U. S. National Museum: 152 fishes, including 150 eels, a mummichog, and a darter, also a crayfish (67216); 162 specimens of young eels from the rock pools south of Chain Bridge, Potomac River (67181); 11 fishes, 24 insects, 18 snails, 4 shrimps (very young), and leeches (68495).
- BEAN, BARTON A., U. S. National Museum, and R. V. TRUITT, University of Maryland, College Park, Md.: 220 fishes, representing 20 species, and a few invertebrates and reptiles from Chincoteague Bay and a mill pond about 6 miles southeast of Snow Hill, Md. (68415).
- BEAVER DAM MARBLE CO., Baltimore, Md.: Two 4-inch cubes of marble, Mar-Villa and White (67329).
- BECKER, Mrs. GEORGE F., Washington, D. C.: A finely woven hat purchased in 1898 by George F. Becker, United States geologist, in the Philippines (68307).
- BECKER, WILH., Rosian (Magdeburg), Germany: 218 plants from Europe (67878, exchange).
- BECKER (INC.), CHRISTIAN, New York City: Analytical chainomatic balance (67262, loan).
- BECKLEY, A. W., Tampico, Mexico (through Dr. L. W. Stephenson): A collection of radiolites from the Cretaceous of Mexico (66791).
- BECKWITH, Miss FLORENCE. (See under Rochester Academy of Science.)
- BELGIAN GOVERNMENT (through U. S. Commission of Fine Arts, Charles Moore, chairman, Washington, D. C.): Belgian medals and decorations of the World War, 1914-1918 (19 specimens) (66875).
- BELGRAVE, G. G., Bridgetown, Barbados: 2 marine mollusks and a starfish from Barbados (67580).
- BENDIX, Sr. DON ALBERTO, Ahuachapán, El Salvador: 15 specimens of woods (68457).
- BENINGTON, ARTHUR. (See under World, The.)
- BENJAMIN, Mrs. CAROLYN GILBERT. (See under Colonial Dames of America, National Society of.)
- BENJAMIN, Dr. MARCUS. (See under War of 1812, The General Society of.)
- BEQUAERT, Dr. JOSEPH, American Museum of Natural History, New York City: 4 specimens of solitary wasps representing 4 species new to the national collections (66882).
- BERKY, D. W., University of the South, Sevanee, Tenn.: Photograph of an otter from the Aroguaya River, Brazil (67049).
- BERLINER, EMILE, Washington, D. C.: Original copy of the earliest business circular of the Bell Telephone Co. and a pencil sketch made by him in the office of George C. Maynard, District of Columbia representative of the Bell Telephone Co., marked "Berliner Oct. 25, 1877" (67923).
- BERNICE PAUAF<sup>U</sup> BISHOP MUSEUM, Honolulu, Hawaii (through Dr. C. H. Edmondson): 2 crabs from Waikiki Reef, Honolulu (67428); (through Edwin H. Bryan, assistant entomologist) 5 specimens of tropical flies (1 paratype) (68315).
- BERRY, Prof. E. W., Johns Hopkins University, Baltimore, Md.: A collection of fossil bryozoans from the carboniferous rocks of Bolivia (67460).
- BETHEL, ELLSWORTH, State Museum, Denver, Colo.: 2 plants from New Mexico (67835).
- (See also under Colorado State Museum.)
- BIBBINS, Prof. A. B., Maryland Academy of Sciences, Baltimore, Md.: Irregular slice of meteoric

- BIBBINS, Prof. A. B.**—Continued.  
iron from Odessa, Ector County, Tex. (67993, exchange).
- BIGELOW, N. K.** (See under Royal Provincial Museum.)
- BILLINGTON, C.**, Detroit, Mich.: 180 plants from Florida (67671, exchange).
- BIRMINGHAM, UNIVERSITY OF**, University Road, Edgbaston, Birmingham, England: 52 specimens of fossils, including Lower Cambrian and Upper Silurian forms, from England (67838, exchange).
- BLACKMAN, M. W.**, New York State College of Forestry, Syracuse, N. Y.: 32 beetles, including 31 paratypes of 10 new species (67072).
- BLACKMORE, E. H.** (See under Provincial Museum.)
- BLAKE, Dr. S. F.**, Bureau of Plant Industry, U. S. Department of Agriculture, Washington, D. C.: 78 plants from Massachusetts (67151). (See also under Agriculture, Department of, Bureau of Plant Industry, T. S. Brandegee, and California, University of.)
- BLANKINSHIP, Dr. O. F.**, Richmond, Va.: Plant (66977).
- BLUESTONE, Dr. E. M.**, assistant director, The Mount Sinai Hospital, New York City: 187 slides showing the various stages of development of the malarial parasite (67953).
- BLUMENTHAL AND CO.**, SIDNEY, New York City: Series of 13 specimens illustrating the manufacture of seal plush (68481).
- BLY, Mrs. CHARLES**, Yucca, Ariz.: 14 plants (66836, 67545, 68141); 8 plants from Arizona (67718).
- BOERICKE & TAFEL (INC.)**, Philadelphia, Pa. (through Dr. W. A. Dewey, Ann Arbor, Mich.): 33 specimens of standard homeopathic literature (67372).
- BÖGGILD, Prof. O. B.**, Universitete Mineralogiske og Geologiske Museum, Copenhagen, Denmark: 55 specimens of minerals and rocks from Greenland (67411, exchange).
- BONATI, G.**, Lure (Haute-Saone), France: 18 plants (68221, exchange).
- BONNE, Dr. C.**, Moengo, Surinam: 3 small mammals and 14 snakes (67614).
- BONNER, JOHN J.**, Lusk, Wyo. (through F. L. Hess): 3 specimens of uranophane-bearing Dakota sandstone (67674).
- BOONE, Miss PEARL L.** (See under Dr. Mario Sanchez Roig.)
- BOOTH, FRANKLIN**, New York City: Original pen and ink drawing, framed (67944, loan).
- BORUP, CHARLES**, London, England: 7 pictorial photographs (67456).
- BOSTON SOCIETY OF NATURAL HISTORY**, Boston, Mass. (through C. W. Johnson): A collection of named Diptera, consisting of 390 species, 3 of which are represented by paratypes (68191).
- BOTANIC GARDENS**, Sydney, New South Wales, Australia: 200 Australian plants (67141, 67606). Exchange.
- BOTANISCHER GARTEN UND MUSEUM**, Berlin-Dahlem, Germany: 30 plants from South America (portions of type specimens of Compositae described by Hieronymus); also 31 fragmentary specimens of South American plants, mainly types (67271, 68127); (through Dr. I. Urban) 19 fragmentary specimens of West Indian ferns and 2 specimens of tropical American ferns (67884, 68404); 114 specimens of ferns from tropical America (67963); fern from Porto Rico (68054); plant from India (68422). Exchange.
- BOVELLE, SAMUEL**, Washington, D. C.: Centipede from Point Limon, Costa Rica (67444).
- BOYD, LAWRENCE V.** (See under Pennsylvania District Kiwanis Club.)
- BRADSHAW, R. V.**, Palo Alto, Calif.: Specimen of grass from California (67061).

- BRAINERD, ROBERT L.** (See under W. L. Penney.)
- BRANDEGEE, T. S.**, Department of Botany, University of California, Berkeley, Calif. (through Dr. S. F. Blake): 2 Mexican plants (68031). (See also under California, University of.)
- BRAUN, J. N.**, warden, Alaska Service, Bureau of Fisheries, Washington, D. C. (through Dr. Hugh M. Smith): 2 Eskimo skulls (67176).
- BREEN STONE AND MARBLE CO.**, Kasota, Minn.: 2 slabs of Kasota marble, 5 by 2 feet (67687).
- BREHME, H. H.**, South Amboy, N. J.: 2 moths (67416, exchange).
- BRETON, TOMAS A LE**, Ambassador of Argentina, Washington, D. C. (through Dr. L. S. Rowe, director general of the Pan-American Union): Bronze plaque commemorating the unveiling of a monument in Buenos Aires, 1920, to Gen. Justo José de Urquiza, first constitutional President of the Argentine Republic (67751).
- BRIDGEN, S.**, Walthamstow, England: 5 pictorial bromides (68176).
- BRIDWELL, J. C.**, Bureau of Entomology, U. S. Department of Agriculture, Washington, D. C.: Quartz arrowheads and rejects, and fragments of pottery from one-half mile from Cornelia, Habersham County, Ga. (68306).
- BRIGMAN, EDWARD**, Baxley, Ga.: Stone tube from Georgia (67582).
- BRITISH GOVERNMENT:** (through U. S. Commission of Fine Arts, Charles Moore, chairman, Washington, D. C.): British medals of the World War, 1914-1918 (5 specimens) (66874).
- British Museum (Natural History)*, London, England (through Dr. W. T. Calman): 4 specimens, 4 species, of wood-boring mollusks and 1 specimen, 1 species, of crustacean, from Cape Colony, Australia, and Straits Settlements (66811); 836 plants collected in Brazil by
- BRITISH GOVERNMENT—Contd.**
- British Museum (Natural History)*—Continued.
- Gardner (67653, exchange); (through Maj. E. E. Austen) 4 tropical flies (67879, exchange); (through F. W. Edwards) 107 specimens of mosquitoes (68148).
- Royal Botanic Gardens*, Kew, Surrey, England: 10 fragmentary specimens of South American tree ferns (types) (68154, exchange).
- Science Museum, The*, London, England (through H. G. Lyons, director): 11 photographs of models and drawings of early steam engines (66850).
- BROCKETT, PAUL**, Smithsonian Institution: A match safe with a copy of the official commemorative medal coined by the U. S. Mint, U. S. Treasury exhibit, Panama-California Exposition, San Diego, 1915, mounted in the lid (67707); bat (68354).
- (See also under National Academy of Sciences.)
- BROOKLYN BOTANIC GARDEN**, Brooklyn, N. Y.: 122 ferns (cultivated forms of *Nephrolepis*) (67506, exchange).
- BROOKLYN INSTITUTE OF ARTS AND SCIENCES. CENTRAL MUSEUM**, Brooklyn, N. Y. (through Dr. G. P. Engelhardt): 2 moths (67607).
- BROWN, CALVIN S.**, Mississippi Geological Survey, University, Miss.: 5 human skulls and 5 lower jaws, from excavations in Mississippi (67904).
- BROWN, C. G.**, Columbus, Ga.: Whistle found in sewer site in the northern suburb of Columbus (67962).
- BROWN, EDWARD J.**, Los Angeles, Calif.: 2 skins of gulls from California, 132 bird skins and 1 crustacean from southern California (67589, 67592).
- BROWN, EMMA L.**, Council, Idaho: Katydid (Idaho devil) (67078).

- BROWN, J. S., U. S. Geological Survey, Washington, D. C.: Plant from Haiti (67206).
- BROWN, W. L., U. S. National Museum: Skin and skull of a mole from Falls Church, Va. (67031); 5 birds from Virginia and the District of Columbia (67096).
- BRYAN, EDWIN H. (See under Bernice Pauahi Bishop Museum.)
- BRYAN, Major HARRY S., Springfield, Ohio: Archeological material collected in the Valley of Mexico (66890, loan); bident spearhead, pike, and knife with carved horn handle, Mexico (67414); 2 copper candlesticks, a copper chocolate pot, a pitcher-shaped beaded purse, and a brass barber's basin (67422).
- BRYAN, W. J., Fullerton, Calif.: Spider (66819); tarantula from Fullerton, Calif. (67255).
- BRYANT, E. G., Prieska, Union of South Africa: 2 specimens of rose quartz from Prieska, Union of South Africa (67130).
- BUCKINGHAM, J. E., Washington, D. C.: Bald eagle in immature plumage, from Fredericksburg, Va. (68077).
- BURMA, GOVERNMENT OF, Rangoon, Burma (through the lieutenant governor): 38 gramophone records in 29 of the languages and dialects of Burma (67796).
- BURSUM, Hon. HOLM O., United States Senate (through Dr. Frank Springer): Examples of torbernite from White Signal, Grant County, N. Mex. (66878).
- BUSCK, AUGUST, Bureau of Entomology, U. S. Department of Agriculture, Washington, D. C.: Skin and skull of a bat (68282).
- BUSH, B. F., Courtney, Mo.: Land and fresh-water mollusks; also 17 plants from Missouri (66955, 67651).
- BUSHNELL, DAVID I., Washington, D. C.: Double sheet of Italian handmade paper from an account book, the earliest entry in which dates from 1580 (67075).
- BUTLER, Mrs. ADA L., Pine, Idaho: 7 insects (68006):
- BUTTERS, Prof. F. K. (See under Minnesota, University of.)
- BUXTON, L. H. DUDLEY, Department of Human Anatomy, University Museum, Oxford, England: 7 specimens of cacti from the southwestern United States (67683).
- CALDERON, Señor SALVADOR, Direccion General de Agricultura, San Salvador, El Salvador: 18 fishes taken in the Acelhuate River, San Salvador (66981); 11 plants (67149); 103 plants from Salvador (67542); 5 specimens, 2 species, of roaches; 3 specimens, 1 species, of land shells, from Cerro de San Jacinto, near San Salvador (67749); 3 specimens of immature roaches (67872).
- CALIFORNIA ACADEMY OF SCIENCES, San Francisco, Calif.: 50 specimens of catci collected in Mexico by I. M. Johnston (67001); (through Mr. Johnston) 20 ferns (67734); (through J. Van Denburgh) 2 frogs and 3 lizards from Formosa and the Loo Choo Islands (67267); 77 plants from Lower California (67377, 67432); 295 plants (67954); plant, from California (68038). Exchange.
- CALIFORNIA, UNIVERSITY OF: (through Prof. E. O. Essig) 17 specimens of parasitic Hymenoptera (67024); 9 species of Orthoptera (grasshoppers, roaches, and mantids), 3 species of parasitic wasps, and 4 specimens of moths (67455); 5 specimens of flies (68222); 3 plants from Montana (67127); (through T. S. Brandegee) ferns and plants from Mexico (67738, 67765, 68272, exchange); a tarsometatarsus of the fossil bird, *Parapape californicus* (67803); (through Prof. H. M. Hall) plant from Arizona (67871, exchange); (through Prof. W. A. Setchell) 59 plants from Samoa (68241, exchange); (through Dr. S. F. Blake, Bureau of Plant Indus-

CALIFORNIA, UNIVERSITY OF—  
Continued.

try, U. S. Department of Agriculture, Washington, D. C.) a portion of the type specimen of plant, *Tanacetum compactum*, from Nevada (68291, exchange); (through Ivan M. Johnston) 6 specimens of cacti (68454, exchange).

CALMAN, Dr. W. T. (See under British Government, British Museum (Natural History).)

CAMP, R. D., Brownsville, Tex.: Plant and a turtle from Brownsville, Tex. (66887, 67308).

CAMPBELL ART CO., THE, Elizabeth, N. J.: 2 copies of "The Golden Glade," a collotype in color, by F. Hazell (67183); a multicolor (collotype) reproduction "Dahlias" (67316); original water color of "The Ducal Palace," by Frank Wasley, 4 collotype printing plates and 7 progressive proofs from them (67633); collotype print in colors of "The Ragged Sentinels" (landscape), after Alden Pierson (68400); chromo collotype reproduction entitled "Autumn Landscape," after Allen D. Cochran, and a duplicate print (68512).

## CANADIAN GOVERNMENT:

*Department of Agriculture*; Entomological Branch, Ottawa, Canada: (through Dr. J. McDunnough) larva of a moth (67499); 3 specimens of flies, 1 of them being a paratype (67620, exchange).

*Biological Board of Canada*, University of Toronto, Toronto, Canada: (through A. H. Leim) shrimp from St. Marys Bay, Nova Scotia (68079, exchange); (through Prof. A. G. Huntsman) 40 mollusks and a collection of crustacea from the Gulf of St. Lawrence, being a part of the material collected by the Cheticamp Expedition (68528).

*Victoria Memorial Museum*, Department of Mines, Ottawa,

## CANADIAN GOVERNMENT—Contd.

*Victoria Memorial Museum*—Con.

Canada: (through Harlan I. Smith) fresh-water mollusks from the Atnarko River, Atnarko, British Columbia (67341); (through Dr. E. M. Kindle) 4 specimens of annelid worms, collected by J. T. Bertrand at Chandler, Coast of Gaspé, Province of Quebec, Canada (67998); fossil bones representing 5 species of dinosaurs, and fossil wood, from Alberta, Canada (68312, exchange).

CAPPS, S. R., U. S. Geological Survey, Washington, D. C.: A fragment weighing 42 grams of a meteorite found near Cold Bay, Alaska (67304).

CARLETON, M. A., Bocas del Toro, Panama: 82 plants from Panama (66924).

CARNEGIE INSTITUTION OF WASHINGTON, Washington, D. C.: 3 plants, cacti, collected by Prof. Albert Ruth (67362); 13 plants collected in Texas by Mrs. S. L. Pattison (67390); (through Dr. L. A. Bauer, director, department of Research in Terrestrial Magnetism) a jar of Sargassum weed, together with 40 specimens of crabs, 25 shrimps, 3 annelid worms, and about 100 bryozoans, collected by the Carnegie about 200 miles off Cape Hatteras October, 1921 (67664).

CARNEGIE INSTITUTION OF WASHINGTON, MOUNT WILSON OBSERVATORY, Pasadena, Calif. (through Alfred H. Joy, secretary): Collection of photographs showing the history of transportation methods on the Mount Wilson road (67263).

CARNEY, J. E., JR., Minas Geraes, Brazil (through F. L. Hess): Samples of a radioactive mineral from Minas Geraes, Brazil (67167); 8 specimens of the mineral pucherite from Brazil (68213).

- CASLON and Co. (Ltd.), H. W., London, England: 2 specimens of fine printing, consisting of a catalogue of Caslon type and "Two Centuries of Typefounding" (67483).
- CASSINO, S. E., Salem, Mass.: South American moth, new to the Museum collections (68242).
- CASTELLANOS, ALBERTO, Buenos Aires, Argentina: 15 plants (67830).
- CAWSTON, Dr. F. G., Durban, South Africa: 27 mollusks (68523).
- CHAMBERLAIN, EDWARD B., New York City: 150 plants, chiefly from New England (67159, exchange).
- CHAMBERLAIN FUND, FRANCES LEA, Smithsonian Institution: 64 specimens, 26 species, of mollusks from Haiti (66895); collection of agates from the mouth of the Uruguay River (66907); 42 specimens, 22 species, of mollusks, including cotypes of 16 species (67046); a 61-carat cut gem of orthoclase from Madagascar (67228); 7 fresh-water pearls from rivers of Indiana and Arkansas (67330); 44 specimens, 16 species, of land and marine mollusks from various localities (67517); 1,717 lots of Philippine mollusks, which constitute the part of the Quadras collection of the Chicago Academy of Sciences (68204); a cut gem of blue zircon from Australia, weighing 10.9 carats (68316); 12 pieces of Baltic amber (68327); a series of diamonds from Arkansas, including white, yellow, and brown (20 specimens) (68487).
- CHANSLER, WALTER S., Bicknell, Ind.: 17 odd skulls of small mammals from Bicknell, Ind. (67029).
- CHAPIN, E. A., Bureau of Animal Industry, U. S. Department of Agriculture, Washington, D. C.: Specimen of gray-cheeked thrush from Virginia (67168); 29 specimens of beetles, representing 19 species and including types and paratypes of 5 new species of Elateridae (Othniidae), from the Philippine Islands (67448, exchange); 2 skins of old squaw from Maryland (67729).
- CHAPLINE, W. R. (See under Agriculture, Department of, Forest Service.)
- CHAPPELL, R. H., Kensington, Md.: 3 specimens, 2 species, of marine mollusks from Panama Bay (68128).
- CHASE, MRS. AGNES, Department of Agriculture, Washington, D. C.: Moss from Virginia (66982).  
(See also under Agriculture, Department of, Bureau of Plant Industry, and Prof. F. L. Stevens.)
- CHENEY BROTHERS, New York City: 34 specimens of silk ties, tie fabrics, silk mufflers, etc. (67147).
- CHILDS, L. J., Rialto, Calif.: Specimen of altered kyanite from Los Angeles County, Calif., and 1 of piedmontite in quartz, from San Bernardino County, Calif. (67118).
- CHILTON, Dr. CHARLES, Canterbury College, Christchurch, New Zealand: 43 specimens, 6 species, of isopods; also 66 specimens, 5 species, of isopods, and 45 specimens, 3 species, of amphipod crustaceans, all from New Zealand (66824, 67640, exchange).
- CHOATE, WILLIAM W., Bath, Me.: Drum and pair of sticks used during the Civil War by the father of the donor, William M. Choate, Company K, 39th Massachusetts Volunteers (67539).
- CLACEY, JOHN, Bureau of Standards, Washington, D. C.: 2 portraits of girls' heads, life size; 1 portrait of a lady, life size, all in gilt frames (67201).
- CLAPP, GEORGE H., Sewickley, Pa.: 6 mollusks, from Bermuda (68138).
- CLARK, AUSTIN H., U. S. National Museum: 6 sea urchins from southeastern Africa (66901); grass basket made by the Aleuts of Attu Island, Alaska, collected personally by the donor in 1900 (67584); bat (68398).
- CLARK, ROBERT STERLING, New York City: Collection of birds, mammals, fishes, reptiles, batrachians, invertebrates, 2 lots of algae, mollusks, and an echinoderm, collected by Mr.

- CLARK, ROBERT STERLING—Continued.  
Arthur deC. Sowerby in China (68094).
- CLARK, W. C., Vicksburg, Miss.: Collection consisting of 37 lots of Oligocene fossils from Glass Bayou, Miss. (67266).
- CLARKE, Dr. F. W., U. S. Geological Survey, Washington, D. C.: A portrait of Prof. Paul Groth (67405).
- CLARKE, JOHN S., Ardmore, Pa.: Complete working model of the American type locomotive, made of brass and steel, constructed by George Boshart to a scale of one-half inch to a foot (67595, loan).
- CLARKE, LOUIS C. G., Berkeley House, Hay Hill, London, England: Jade club collected in New Zealand in 1845 (67347, exchange).
- CLARKE, LOUIS S., Ardmore, Pa.: 2-cylinder steam engine of the style used in the Locomobile of the period of about 1901 (68035).
- CLAUDE-JOSEPH, Rev. Bro. (See under Instituto de la Salle, Correo Nunoa, Chile).
- CLEMENS, Mrs. E. J., Washington, D. C.: Coral and 3 marine mollusks (67969).
- CLEMENTS, Dr. F. W., Alpine Laboratory, Manitou, Colo.: 3 plants (67204).
- CLEMENTS, Dr. J. MORGAN, New York City: Samples of iron ore from China (received through Department of Commerce) (66916); 3 specimens, 1 species, of fresh-water mollusks from Chenchow, Hunan Province, China (67307); an example of Yu Yen stone from Manchuria and nuggets of tin ore (cassiterite) from Hunan, China (67932); specimen of zinc from Linchow, Province of Kwangtung, China (68409).
- CLENCH, WM. J., Boston, Mass.: 50 specimens of mollusks, from Sanibel Island, Fla. (67396).
- CLINTON, H. G., Manhattan, Nev.: Fossil bones of the bison and horse from near Central, Nev. (66979);
- CLINTON, H. G.—Continued.  
pieces of fossil jawbone and a horse tooth (67433); 6 specimens of minerals from Argentite, Nev. (67926).
- CLINTON, H. G., and PERCY TRAIN, Manhattan, Nev.: About 200 specimens of Ordovician fossils from Nevada (66816, exchange).  
(See also under Percy Train.)
- CLINTON, H. G., and DICK TAYLOR, Manhattan, Nev.: 4 specimens of minerals from the White Caps mine, Manhattan, Nev. (68139).
- CLOKEY, IRA W., Denver, Col.: 22 plants from Colorado (67348); 224 plants from Colorado (68161, exchange).
- COATSWORTH, J. H., Alexandria, Egypt: 4 pictorial photographs (67577).
- COCKERELL, T. D. A., Boulder, Colo.: 50 specimens, 6 species, of recent mollusks, and 53 specimens, 24 species, of Pleistocene mollusks, from Porto Santo, Madeira; 2 slugs, 2 landshells, 10 myriapods, 7 crustaceans, 9 planarians, and 1 earthworm, 16 plants, and 30 specimens, 8 species, of land shells, all from Madeira (66852, 66885, 66965, 67754); approximately 450 mounted insects, most of which are unnamed, and approximately 500 unmounted and unnamed insects, also the type of 1 species of bee (66905); approximately 50 unidentified American insects and 11 species of exotic beetles (5 of which are represented by paratypes) (67339); 6 insects, representing 4 species and including type and allotype of *Machimus portosanctanus* (67429); 108 specimens of miscellaneous insects, including 9 paratypes (68071); 15 specimens of bees and beetles, representing 12 determined species, 3 of which are cotypes of bees and 3 are types of beetles (68190); 10 bees, representing 8 species, 7 of which are represented by types (68337); 10 insects, 1 of which is a type (68346); 5 undetermined insects from Colorado (68357).



- COFFEE, Dr. J. H., Arcadia, Fla.: A malformed chick in alcohol (68196).
- COLEGIO DEL SAGRADO CORAZÓN, Guantanamo, Oriente, Cuba (through Brother Hioram): 57 specimens of ferns from Cuba (67277, 68296).
- COLLEY, ARTHUR G., Sacramento, Calif.: 2 worked stones found on a camp site in Yolo County, Calif. (67717).
- COLLINS, DAD, Allenhurst, Fla.: Skull of a bear (66853).
- COLLINS, GEORGE C. H., Allenhurst, Fla.: Antlers of a deer and 5 fishes (66948).
- COLONIAL DAMES OF AMERICA, NATIONAL SOCIETY OF, Washington, D. C. (through Mrs. Carolyn Gilbert Benjamin): Leather pocketbook, silver spoon, and land grant of the early part of the nineteenth century (66899); shoes (8 specimens) (66953); a water-color miniature of Capt. Nathaniel Wattles, of Connecticut and Alexandria, Va., made in 1761 (67417); photograph of the commission of William Edmonds as captain of a company of militia, Fauquier County, Va., 1761 (67956); uniform and insignia of a United States Army nurse (26 specimens) (68012); ivory-handled naval dirk owned during the War of the Revolution by Capt. William Wattles (1739-1787) (68051); photograph of the commission issued by the committee of safety for the Colony of Virginia to William Edmonds as colonel of the Militia of Fauquier County, Va., September 26, 1775 (68120); Young Women's Christian Association canteen worker's overseas uniform accessories (6 specimens) (68238); necklace, pair of earrings, sewing box, quilted coat, 2 muslin dresses, petticoat, and apron owned during the latter part of the 18th century by Martha Washington (9 specimens) (68511). Loan.
- COLORADO MUSEUM OF NATURAL HISTORY, THE, City Park, Denver, Colo.: 2 moths (68188).
- COLORADO STATE MUSEUM, Denver, Colo. (through Ellsworth Bethel): 6 plants (67034).
- COLUMBIA UNIVERSITY, College of Physicians and Surgeons, New York City (through Dr. George S. Huntington): 62 cases of skeletal material (67496, exchange).
- COMMERCE, DEPARTMENT OF:  
*Bureau of Fisheries*: 1 specimen of crustacean (66858); 2 unusually fine specimens of marine mollusks from Key West, Fla. (66939); marine mollusks from Alaska (67178); a slab containing fossil shells from Herendeen Bay, Alaska (67179); a collection of 29 shrimps, representing 8 species, collected by E. M. Ball, of the bureau, in Thomas Bay, Alaska, and a crab collected in Sumner Strait, Alaska (67278); a collection of marine invertebrates, echinoderms, mollusks, and algae collected by the U. S. S. *Albatross* in the Philippines, 1907-1910 (67302); hydroid from St. Paul Island, Alaska, specimen of tin ore collected by Dr. B. W. Evermann, and a collection of mollusks from the *Albatross* Tropical Pacific Expedition, 1899-1900 (67336); 13 type specimens of lizards collected by the steamer *Albatross* in 1911 (67361); miscellaneous collection of echinoderms from the *Albatross* Panama, East Pacific, Hawaiian, and other cruises which had been determined by A. Agassiz and H. L. Clark (67490); basket-fish, from Fernandina, Fla. (67520); collection of reptiles made by the *Albatross* in Lower California (67603); 125 fishes collected in various localities; also 20 bottles and jars containing a miscellaneous collection of

COMMERCE, DEPARTMENT OF—  
Continued.*Bureau of Fisheries*—Continued.

fishes from various localities (67694, 68013); 13 plants from South Carolina, collected by S. F. Hildebrand (67697); type specimen of *Ophidium welshi*, 2 specimens of *O. holbrookii*, and 2 of *O. brevisarbe* (67752); a large collection of miscellaneous invertebrates from Chesapeake Bay, collected by the *Fish Hawk* (Dr. R. P. Cowles in charge) in connection with the Hydrographic and Biological Survey of Chesapeake Bay, comprising 168 lots of crustaceans, 2 lots of pycnogonids, 44 lots of mollusks, and 1 coral (68131); 2 microscopic slides, one of a tube-dwelling amphipod and the other supposed cirrus of a barnacle, taken from the stomachs of fishes (68277); 15 isopods and 20 amphipods collected by Dr. R. E. Coker at Beaufort, N. C., on piles at the west end of the town, April 25, 1922 (68302); 200 specimens of amphipods and 60 specimens of isopods collected May 23, 1922, at Beaufort, N. C., by Charles Hatsel (68378); water terrapins and musk turtles from Bullockville, Ga. (68391); (through Dr. R. P. Cowles, Johns Hopkins University Station) 41 mollusks from Severn River, Md. (68463); 171 vials and 62 prepared slides of foraminifera collected by the U. S. Bureau of Fisheries steamer *Fish Hawk* in the shallow waters off the coasts of North and South Carolina and identified by Dr. C. H. Edmondson of the College of Hawaii (68412).

(See also under Dr. J. Morgan Clements, Prof. F. Payne, and Sarasota County Chamber of Commerce.)

COMMERCE, DEPARTMENT OF—  
Continued.

*Bureau of Foreign and Domestic Commerce*: Foreign trade samples of fibers, gums, seeds, woods, and miscellaneous raw materials sent by American consuls and special agents of the department (67246, loan).

(See also under Shakespeare Co.)

COMPTON, ALONZO E., U. S. General Land Office, Santa Fe, N. Mex.: Earthenware jar found in Chaco Canyon (67331).

CONDIT, D. DALE, New York City: Collection of fossils, mostly foraminifera, from 125 localities representing a section of the Tertiary formations in northwest India (68431).

CONTINENTAL INSURANCE CO., THE, New York City (through Joseph E. Lopez, President): 3 framed oil paintings entitled "The First Automobile," "The First Street Railway," and "The First Steamboat" (67131, loan).

CONZATTI, Prof. C., Oaxaca, Mexico: 41 plants; also 135 plants from Mexico (67153, 67527).

COOK, HAROLD J., Agate, Nebr. (through Dr. T. W. Stanton): 2 Upper Cretaceous fossil shells from South Dakota (67066).

COOK, Dr. O. F., Bureau of Plant Industry, U. S. Department of Agriculture, Washington, D. C.: 2 specimens, 2 species, of land shells from Peten, Guatemala, collected by H. F. Loomis (68223).

COOKE, Dr. C. WYTHE, U. S. Geological Survey, Washington, D. C.: Cretaceous and later fossil material collected by O. B. Hopkins and C. W. Cooke in 1920 at 10 localities in the Republic of Colombia (66868).

(See also under Dr. Julia A. Gardner.)

COOLIDGE, KARL R., Los Angeles, Calif.: 47 moths (67018, 67211).

COOPER, A. T., Webster, S. D. (through Mr. Francis J. Dyer): 4

- COOPER, A. T.—Continued.  
specimens of ores from the Mills mine, 30 miles east of Carbo, Sonora, Mexico (68424).
- COOPER, BERT. (See under Northwest Missouri State Teachers College.)
- COOPER, Prof. WILLIAM S., Department of Botany, University of Minnesota, Minneapolis, Minn.: 128 plants from Alaska (67470).
- COPELAND, E. B., Chico, Calif.: Plant from California (67095).
- CORAM, GEORGE M., Utica, N. Y.: A specimen consisting of calcite crystals showing platy structure, from Fall Brook mine, Lyonsdale, Lewis County, N. Y. (68331).
- CORMACK, A. J., Goldfield, Nev.: Examples of pickeringite from near Goldfield, Nev. (68123).
- CORNELL UNIVERSITY, Department of Botany, Ithaca, N. Y.: 151 plants from Central America (67111, exchange).
- CORNMAN, Mrs. LEIGHTON R., San Diego, Calif.: 593 ferns from Panama (67608).
- CORT, W. W., Johns Hopkins University, Baltimore, Md.: 2 specimens of fishes from Japan, said to serve as the second intermediate host for a trematode parasite of man (67500).
- COVILLE, Dr. FREDERICK V., Bureau of Plant Industry, U. S. Department of Agriculture, Washington, D. C.: 6 plants from New Hampshire (67198).
- COWLES, Dr. R. P. (See under Commerce, Department of, Bureau of Fisheries.)
- C R A N D A L L BROTHERS, North Kingsville, Ohio (through U. S. Department of Agriculture, Forest Service, Washington, D. C.): 30 specimens of bungs, faucets, and vent plugs for casks (68514).
- CREVECOEUR, F. F., Onaga, Kans.: 2 specimens of leeches collected at Onaga (67232).
- CROCKER-McELWAIN CO., Holyoke, Mass.: 5 specimens of halftone printing on certificate bond paper (67148).
- CROCKETT, E. LEW, Tangier, Va.: Crab collected by Capt. C. W. Shores on the "oyster rock" off Tangier (67556).
- CROSBY, Prof. C. R., Cornell University, Ithaca, N. Y.: Isopod found on begonias at Kingston, N. Y. (68379).
- CURRAN, Mrs. MARY A., Washington, D. C.: Mounted wood duck (68193).
- CUSHMAN, Dr. J. A., Sharon, Mass.: 1,000 plus specimens, 320 slides, of foraminifera from the northern coast of Jamaica (66921).
- DALL, MARCUS H., Cedarhurst, N. Y.: 55 specimens, representing 7 species of land and fresh-water mollusks, from Lake McDonald, Glacier National Park, Mont. (67236).
- DALL, Dr. W. H. (See under Hans Schlesch.)
- DAL PIAZ, Mr. BATTISTA, Istituto di Geologia, R. Università, Padova, Italy: Skin and skull of a dormouse (68366).
- DARTON, ARTHUR, Tucson, Ariz.: 4 specimens of cacti from Arizona (67505).
- DAUNTLESS SHIPYARD (INC.), Essex, Conn.: Block model of "Essex class" sailboat (68171).
- DAVIDSON, Dr. A., Los Angeles, Calif.: 3 plants; plant, *Scdum*; 8 plants from California; (66797, 66821, 67357, 67441, 68339, 68399).
- DAVIDSON, W. M., Vienna, Va.: 4 flies (types of 2 species) (68021).
- DAVIS, Prof. DONALD W. (through Dr. Thomas L. Watson, University of Virginia, University, Va.): Oval section of a meteoric stone from Sharps, Richmond County, Va. (68022, exchange).
- DAVIS, Rev. JOHN, Anderson, S. C.: 210 plants (67189).
- DAVIS, LEWIS W., East Jaffrey, N. H.: Hand sugar grinder (67742).

- DAY, Prof. A. L. (See under Philippines, University of).
- DEAM, CHARLES C., Bluffton, Ind.: 35 plants from Indiana; also 10 insect galls (68202).
- DEARDEN, WM., Providence, R. I.: 3 beetles (66972).
- DELAND, CLYDE O., Philadelphia, Pa.: Photograph of an oil painting "The Trial Trip of the Stourbridge Lion" (67173).
- DELAWARE, STATE OF. STATE MEDAL COMMITTEE (through the adjutant general, Wilmington, Del.): Badge, in duplicate, of the type awarded by the State of Delaware to citizens of that State for services during the World War (67150).
- DENSMORE, Miss FRANCES, Bureau of American Ethnology, Washington, D. C.: Unfinished rice bag and 7 dolls, Chippewa; also 6 samples of Pima foods (67418, 67679).
- DERICKSON, Mrs. R. B., Seattle, Wash.: Basket made by the Chilcat Indians, Alaska (67523, loan).
- DERRICKSON, Mrs. KATE C., Monessen, Pa.: A letter written by Abraham Lincoln November 1, 1862, concerning Capt. D. C. Derrickson; a photograph made by Brady in 1862, showing President Lincoln and a group of Union officers, including Captain Derrickson; also a banner bearing the insignia of the Grand Army of the Republic used soon after the Civil War (68350).
- DEUTSCHES ENTOMOLOGISCHES MUSEUM, Berlin-Dahlem, Germany: 23 tiger beetles, representing 20 species (67113, exchange).
- DEVEREUX, Mrs. J. RYAN. (See under Sinnott, estate of Mary Elizabeth.)
- DE VINNE PRESS, THE, New York City: Copy of a book entitled "Types of the De Vinne Press" (68349).
- DEWEY, Dr. W. A., Ann Arbor, Mich.: 165 specimens consisting of photographs, illustrations, and pamphlets relating to the history of homeopathy (68451).  
(See also under Boericke & Tafel (Inc.), Dr. Carroll Durham Smith, and Dr. J. P. Sutherland.)
- DIVEN, E. L., JR. (through Mrs. Eugene Diven, Elmira, N. Y.): Collection of miscellaneous insects (68172).
- DIXWELL, JOHN, Boston, Mass.: Shell hoe blades from Barbados Islands (67468).
- DODDS, CLIFFORD T., Berkeley, Calif.: 2 specimens (paratypes) of mealybugs (microscopic slides) (68281).
- DODE, L. A., Paris, France: 2 plants (68004, exchange).
- DODGE, CHEE, St. Michaels, Ariz. (through E. B. Meritt, Assistant Commissioner of Indian Affairs, Washington, D. C.): Sandal of the Cliff Dwellers (67103).
- DOELLO-JURADO, M. (See under Museo Nacional de Historia Natural, Buenos Aires, Argentina.)
- DONNALLY, J. H., Marlinton, W. Va.: Worm (66787.)
- DOUGLASS, Mrs. M. H., Moorestown, N. J.: Carved slate plate (broken) and kelp fishing line with 2 hooks collected in Alaska in 1851 (67524).
- DRAKE, CARL F., College of Forestry, Syracuse, N. Y. (through W. L. McAtee): 8 specimens, 4 species, of plant bugs, 3 of which are new to the Museum collections (67634).
- DRAKE PROCESS (INC.), Cleveland, Ohio: 2 samples of wood pulp and 28 articles made therefrom (67928).
- DREER, HENRY A., Riverton, N. J.: Cultivated fern (67612).
- DRYMAN, VIVIAN, Sarasota, Fla.: Basket fish (67125).
- DUFFNER, O. C., Paradise, Ariz.: 12 larvae of a moth (67424).
- DUFUR & CO., Baltimore, Md.: 6 samples of brass-wire sieve cloth, sizes 20 to 80, used for sifting powdered drugs (67275).

- DUMBLE, E. T., San Francisco, Calif. (through Dr. T. Wayland Vaughan): Fossil coral from Brazos County, Tex. (67156); 16 specimens, 6 species, of fossil corals, from the Midway Eocene of Texas (part gift and part exchange) (67776).
- DUNHAM, MRS. JOSEPHINE BALESTIER, CAROLINE BALESTIER KIPLING, and BEATTY SMITH BALESTIER (through Mrs. Josephine Balestier Dunham, New York City): Japanese sword of honor presented by the Mikado to Erasmus Peshine Smith in 1875 in recognition of his services as diplomatic adviser to the Japanese Government (67894).
- DUPLAN SILK CORPORATION, New York City: 2 specimens of novelty silk dress goods (67087).
- DUVAL, HUGH H., Bastrop, Tex.: 13 specimens, 3 species, of land mollusks, probably Pleistocene, from the Colorado River valley, Tex. (68048).
- DYER, FRANCIS J., American consul, Nogales, Sonora, Mexico: 10 plants (66932, 66959); 1,620 Hemiptera, 731 Diptera, 450 Hymenoptera, 204 Orthoptera, 40 Neuroptera, 37 Libellulidae, a collection of ants, 2 snakes, a small frog, and a collection of shells (68442).  
(See also under A. T. Cooper and Leo J. Trefren.)
- EARLE, CHARLES T., Palma Sola, Fla.: 2 small collections of vertebrate fossils from Florida; also 16 fragmentary fossil bones and teeth (66919, 66964, 67101).  
(See also under A. M. Guthrie.)
- EASTMAN KODAK CO., Rochester, N. Y. (through George Eastman, president): 2 framed photographs, one of George Eastman and the other of Frank S. Noble (68135).
- EASTON, H. D., Shreveport La. (through Dr. T. Wayland Vaughan): Specimen representing a new species of fossil coral (68471).
- EDISON LAMP WORKS OF GENERAL ELECTRIC CO., Harrison, N. J.: Cabinet showing the various parts and steps in the manufacture of an Edison Mazda incandescent lamp (67740); a series of 18 incandescent lamps to complete the Museum's chronological history of the Edison incandescent lamp, 1879-1922 (68276); a series of 76 incandescent electric lamps illustrating a like number of types in use in the year 1922 (68492).
- EDMONDSON, Dr. C. H., University of Hawaii, Honolulu, Hawaii: 5 lots of shipworms from Hawaii (68490).  
(See also under Bernice Pauahi Bishop Museum.)
- EDWARDS, F. W. (See under British Government, British Museum (Natural History).)
- ELECTRO-TINT ENGRAVING CO., Philadelphia, Pa.: 4 specimens of half tones in 4 colors (66820).
- ELLIOTT, JOHN A., Fayetteville, Ark.: Specimen of type collection of a fungus from Indiana (67222).
- ELLIOTT, WILLIAM, Chicago, Ill. (through Mr. F. L. Hess): Specimen of uraninite (pitchblende) from Canada (67196).
- ELLIS, Prof. M. M., Department of Physiology, University of Missouri, Columbia, Mo.: 3 snakes, about 350 specimens of crayfishes, 25 specimens of Apus, and 2 arachnids (68363).
- ELLSWORTH, LINCOLN, New York City: The main mass of meteoric iron from Owens Valley, Calif. (67657).
- ELY, Dr. CHARLES R., Gallaudet College, Washington, D. C.: Specimen of red-shouldered hawk (67382).
- EMERY, D. L., St. Petersburg, Fla.: 4 specimens, 1 species, of freshwater mollusks from Japanese Vivipara pond at St. Petersburg, Fla. (67461).
- ENGBERG, Dr. C. C., University of Nebraska, Lincoln, Nebr.: About 100 specimens, representing 25 species, of marine mollusks from Olga,

## ENGBERG, Dr. C. C.—Continued.

Wash., and 4 fragmentary specimens of calcareous algae (67410); 135 specimens, 16 species, of land and fresh-water shells and a brittle starfish; also 22 species of fresh-water and marine mollusks from State of Washington (68029, 68225); 21 specimens, 7 species, of land and fresh-water mollusks, and a bivalve phyllopod crustacean, from near Lincoln, Nebr. (68466).

ENGELHARDT, GEORGE P., Brooklyn Institute of Arts and Sciences, Central Museum, Brooklyn, N. Y.: 21 moths of the family Aegeriidae, comprising 9 species and varieties and including 4 types and paratypes; also 2 larvae, pupa of a moth, and a butterfly (67186, 67281).

(See also under Brooklyn Institute of Arts and Sciences, Central Museum.)

EPPLEY, Commander Marion, U. S. N. R. F., Newport, R. I.: Winchester single-shot, 22 caliber rifle (67498).

ERZINGER, PHILIP, West Plains, Mo.: 2 small arrow points (67352).

ESSIG, Prof. E. O. (See under California, University of.)

ESTACIÓN AGRÓNOMICA DE HAINA, Santo Domingo, Dominican Republic: 77 plants from the Dominican Republic (66871).

EVANS, Victor J., Washington, D. C.: Pair of Moorish saddlebags and an old Javanese batik sarong (in 2 parts) (67370, exchange); piece of batik and a Pueblo woman's dress (68088, exchange); pair of Count Raggi's Bird of Paradise (68333).

EVERTON ENGRAVING CO., Detroit, Mich.: A book entitled "Creative Engraving," containing various advertisements of the donors, showing the effect of the use of odd-shaped diaphragms on the shape of the halftone dot, the regular standard cross-line screen being used (67040).

FAIR, HENRY, Spokane, Wash.: A series of sphaerosiderite and asso-

## FAIR, HENRY—Continued.

ciated minerals from the city of Spokane, Wash. (67964).

FAIRCHILD, GRAHAM, Washington, D. C.: 3 butterflies new to the Museum collections (67714).

FARIS, JAMES A., Haina Experiment Station, Santo Domingo, Dominican Republic: 496 plants from the Dominican Republic (67122, 67170, 67297, 67510).

FARWELL, HART F., Terre Haute, Ind.: Piece of wood from the railroad tie into which was driven a golden spike on the occasion of the completion of the first transcontinental railroad in the United States, in 1869 (68308).

FARWELL, OLIVER A., Detroit, Mich.: 125 ferns from Michigan (67573, exchange); plant from Detroit (67783).

FEARNLEY, Mrs. JOHN, St. Mary's Hall, Burlington, N. J.: Plant from Maine (67088).

FELIPPONE, Dr. FLORENTINO, Montevideo, Uruguay: Collection of shells and insects, 1 fish, 1 marine invertebrate, and 2 crabs (67360); 3 specimens of fishes taken off the coast of Uruguay at a depth of 50 meters, 36° south latitude, 54° west longitude (67493, exchange); 3 specimens of crustaceans, 2 alcyonarians, 2 lots of echinoderms, 2 lots of fishes, and a collection of mollusks (67950); echinoderm, 36 lots of mollusks, 6 lots of crustaceans, 39 lots of insects, and a marine invertebrate from Uruguay (68332); 21 specimens, 19 species, of marine and fresh water shells from Uruguay and Argentina, including the types of 3 new species (68370).

FERGUSON, ARTHUR R., New York City: Collection of Philippine material made by A. W. Ferguson while secretary of the U. S. Philippine Commission, 1900-1901 (68290).

FERRIÈRE, Dr. CH. (See under Musée d'Histoire Naturelle, Berne, Switzerland.)

- FERRIS, Mrs. ROXANA S. (See under Stanford University.)
- FERRISS, JAMES H., Joliet, Ill.: 14 plants (66837, 66958, 67325, 67550); 17 plants from Arizona (67346, 67373, 67529); 5 plants from California (67644, 67680); plant from the Mojave Desert (67661).
- FIELD MUSEUM OF NATURAL HISTORY, Chicago, Ill.: 19 specimens of ferns from Santa Catalina Island, Calif. (66840, exchange).
- FILLER, D. M. (See under Urbana Gravel Company.)
- FINE, ISRAEL, Baltimore, Md.: A scroll of parchment and silk bearing a hymn written in Hebrew (with English translation) in honor of America on the occasion of the centennial anniversary of the composition of the Star Spangled Banner in 1914 (67600).
- FISHER, GEORGE L., Houston, Tex.: 170 plants (67219, 67552).
- FISHER, W. S., U. S. National Museum: 23 specimens, 11 species, of gadflies (67860).
- FLEISHER (INC.), S. B. & B. W., Philadelphia, Pa.: Specimens of worsted knitting and crocheting yarns and handmade sweaters and baby garments illustrating the use of these yarns (68500).
- FLETCHER, T. BAINBRIDGE. (See under Agricultural Research Institute, Pusa, Bihar, India.)
- FLORIDA STATE MUSEUM, Gainesville, Fla. (through T. Van Hyning): 9 snakes from Florida (67064); 41 specimens, 6 species, of mollusks, from Florida and the Bahamas, from the type locality Seminole Run, Lake County, Fla. (68261).
- FLOURNOY, R. W., JR., Washington, D. C.: Skin and skeleton of a Scottish deerhound (68010).
- FOERSTE, Dr. AUGUST F., Dayton, Ohio: 100 casts of types of fossil cephalopods from Arctic America and Arctic Europe (66971).
- FORD, Miss CELYNDA, Washington, D. C.: Collection of primitive weapons, string of shell money, a sidesaddle, and 3 fancy wreaths, done by hand about 1864 (67038).
- FORDE, J. P., Victoria, B. C.: 7 specimens of Cretaceous fossils from Queen Charlotte City, Queen Charlotte Islands (67810).
- FORREST, W. R., St. Johns, Antigua, British West Indies: 4 specimens of fossil corals and 13 echinoids (67885); 26 fossil echinoids and 2 pieces of coral (67913); 4 fossil echini from Antigua (67992); (through Dr. T. Wayland Vaughan) 3 specimens, representing 3 species, of Oligocene corals (68056).
- FOSHAG, WILLIAM F., U. S. National Museum: Vanadium minerals and hydrozincite from Supai, Ariz. (67108).
- FOSTER BROTHERS, Boston, Mass.: 9 collotypes, reproductions of original paintings, printed in colors (67047); 2 chromo collotypes; namely, "The Madonna in Prayer," by Sassaferato, and "The Pilgrimage to Canterbury," by William Blake (68418).
- FOX, Mrs. W. H., Washington, D. C.: Miscellaneous ethnological material (68200).
- FRANC, HENRY, JR., Washington, D. C.: Silver spice box in form of a barrel (67464).
- FRANCK, GEORGE, Chengtu, Szechwan, China (through David C. Graham): 2 moths (67788).
- FRANK, J. F., Edgewood, R. I.: Skull of a large fish, grouper (67745).
- FREEBORN, Prof. S. B., University of California, Berkeley, Calif.: Mosquito eggs (67839, exchange).
- FREEMAN, O. M. (See under R. S. Walker.)
- FRENCH RESTORATION FUND (INC.) (through James M. Halsted, president, New York City): Bronze copy of the gold medal presented by the school children of the United States to Marshal Foch, 1921 (68129).

- FROGGATT, WALTER W., Entomological Branch, Agricultural Department, Sydney, New South Wales: 13 adult sawflies and many larvae (67011).
- FROST, C. A., Framingham, Mass.: 9 beetles, including 5 paratypes (68118).
- FROST, G. ALLAN, Tubbenden Cottage, Farnborough, Kent, England: 21 specimens of British fossils (66923, exchange).
- FRYE, Prof. T. C., Department of Botany, University of Washington, Seattle, Wash.: 2 specimens of plant from Washington (67507, 68185).
- FUCHS & LANG MANUFACTURING CO., THE, New York City: Plaster bust of Senefelder, the inventor of lithography (66917).
- FYLE, S. L., Perryman, Md.: Specimen of albino crow from Maryland (67338).
- GABRIEL, C. J., Abbotsford, Melbourne, Australia: 24 species of marine shells from South Australia (68385).
- GAERSTE, Dr. THOMAS, Curaçao, Dutch West Indies: Dragonfly and a gecko (66937); snake and 2 lizards from Curaçao (66940); large locust or bird grasshopper (67048); scorpion (67930); toad from Curaçao (68025).
- GALE, HOYT S., Washington, D. C.: 6 specimens of colemanite from Colville Wash, Nev. (66908).  
(See also under W. S. Russell.)
- GANNETT, ROGER L., Washington, D. C. (through Frank L. Hess): Specimen of jadeite and albite from northern Burma (67249).
- GARCIA Y MERCET, RICARDO, Museo Nacional de Ciencias Naturales, Hipodromo, Madrid, Spain: 21 specimens of chalcid flies, representing 15 species (67975, exchange).
- GARDNER, Dr. JULIA A., and Dr. C. WYTHE COOKE, U. S. Geological Survey, Washington, D. C.: 38 specimens, 10 species, of land and freshwater shells from Blue Springs
- GARDNER, Dr. JULIA A.—Continued.  
Branch, 4 miles northeast of Marianna, Fla. (66803).
- GARRETT, A. O., Salt Lake City, Utah: 3 plants from Wyoming and South Dakota (66795, 66833, 66900).
- GARRETT, C., Cranbrook, British Columbia, Canada: 31 flies, 23 of which, representing 5 species, are paratypes (67760).
- GAUMER, Dr. GEORGE F., Izamal, Yucatan, Mexico: 18 specimens of cacti (66992, 67383); plant from Mexico (67792).
- GEORGE WASHINGTON UNIVERSITY, Department of Botany, Washington, D. C. (through Prof. Robert F. Griggs): 142 plants from Greece (67004).
- GERSTENBERG, E., Washington, D. C.: Mounted head of a walrus (68360).
- GIBSON, FRANK M., Baltimore, Md.: 2 moths (67815).
- GICHNER, LAWRENCE. (See under Miss E. W. Tracey.)
- GILBRETH, FRANK B., Montclair, N. J.: Series of 14 photographs showing methods of studying motions in industry and the results obtained applied toward elimination of fatigue (67646).
- GILCHRIST, J. D. F., Department of Zoology, University of Cape Town, Cape Town, South Africa: 3 specimens (cotypes) of lancelets from Cape Town, South Africa (68338).
- GILL, DE LANCEY, Smithsonian Institution: Half tone in 3 colors, entitled "The Red Sunshade," from a photograph by Prof. A. Miethe (67865).
- GILPIN, LANGDON & CO. (INC.), Baltimore, Md.: 7 specimens of powdered drugs of different degrees of fineness (67238); 22 specimens of whole and powdered vegetable drugs (68430).
- GLOVER, A. K., Grossmont, Calif.: 162 seaweeds (66793).
- GLOVER, Dr. NORMAN C. (See under American Osteopathic Association, and Dr. George A. Still.)



- GODING, Dr. F. W., American consul, Guayaquil, Ecuador: Plant; package of seeds of cactus; 14 bird skins and a collection of insects from Ecuador (67487, 68180, 68435).
- GOLDMAN, T. J., Barber, Idaho: Nearly complete human male skeleton (68273, deposit).
- GOLDSMITH, Prof. G. W., Colorado Springs, Colo.: 4 plants from Colorado (67485).
- GOLD STAR FATHERS' ASSOCIATION OF ILLINOIS (through Dr. Charles D. Walcott): Duplicate of badge of the Gold Star Fathers' Association placed upon the casket of the unknown dead while lying in state in the U. S. Capitol, November 10, 1921 (67759).
- GOODDING, Prof. LESLIE N., Denver, Colo.: 30 plants from Texas and Arizona (67430).
- GOODRICH, CALVIN, Detroit, Mich.: 17 mollusks, paratypes from the falls of Rough Creek, Grayson County, Ky. (67240); 37 lots of mollusks from the middle western and eastern States (68003).
- GORDON, S. G., Academy of Natural Sciences, Philadelphia, Pa.: Specimen of white chlorite from Nottingham, Chester County, Pa. (66870).
- GOTEBORG BOTANISKA TRÄDGÅRD, Goteborg, Sweden: 220 plants from Juan Fernandez (67999, exchange).
- GOTO, SEITARO, Zoological Institute, Science College, Imperial University, Tokyo, Japan: 2 mice in alcohol from Formosa (67722).
- GOURDON, MAURICE, Nantes, France: 3 species of land and fresh-water mollusks from the Pyrenees (68134); about 500 specimens, 28 species, of land and fresh-water mollusks from southern France and Italy (68166).
- GRAHAM, DAVID C., Suifu, Szechwan, China: 21 specimens, 6 species, of land and fresh-water mollusks from China (66956); 3 mammals, 86 bird skins, 8 snakes, 2 lizards, 2 frogs, a crab, an earthworm, a flat worm, a collection of mollusks, and a collection of insects collected in the Province of Szechwan, China (67412, 68437, 68441); snake, lizard, a shrew, 6 bats, 2 leeches, 10 bird skins, and a collection of insects from Mount Omei, China (67787).
- (See also under George Franck.)
- GRAIG-LWYD EXCAVATION COMMITTEE (through S. Hazzledine Warren, secretary, Sherwood, Loughton, Essex, England): Collection of neolithic stone material from the "Stone-ax factory at Graig-Lwyd, Penmaenmawr, Ireland" (67753).
- GRANT, Mrs. FREDERICK D., Washington, D. C.: Military commissions and other documents owned by Maj. Gen. Frederick D. Grant, U. S. Army (11 specimens) (68165).
- GRANT, J. M., Langley, Wash.: 29 specimens of marine algae from Washington (67652).
- GRANT, JOSEPH W., East Orange, N. J.: Old time lock (67927).
- GRAY, GEORGE M. (See under Marine Biological Laboratory.)
- GREELEY, FRED A., Mount Harqua Hala, Wenden, Ariz.: 4 plants from Arizona (66859).
- GREENE, F. C., Tulsa, Okla.: Plant from Oklahoma (67980).
- GRIFFIN, Mrs. J., Natchez, Miss.: 2 dolls of the eighteenth century (68486).
- GRIGGS, Prof. ROBERT F. (See under George Washington University.)
- GRIMES, Prof. E. JEROME, William and Mary College, Williamsburg, Va.: 3 plants (67129).
- GRIMES, Mrs. MARGARET MCA., Washington, D. C.: Helmet, blouse, 2 shoulder knots, aiguillette, belt, sling, saber knot, sash, and 2 epaulets, owned by the late Brig. Gen. George S. Grimes, U. S. Army (11 specimens) (67921).
- GRIMKÉ, Mrs. LOUISE F. G., New York City: Iron spike from the temporary railroad constructed at Elberon, N. J., for the removal of President Garfield from the main

- GRIMKÉ, Mrs. LOUISE F. G.—Contd.  
line to the cottage where he died after having been shot (67822).
- GRISWOLD, Mrs. M. A., Washington, D. C.: 2 specimens of silk and linen, and cotton gloria fabrics used for covering umbrellas (68449).
- GROSVENOR, Miss EDITH LOUISE.  
(See under Mrs. Artemesia H. Thomas.)
- GROUT, Dr. A. J., New Dorp, Staten Island, N. Y.: 25 specimens of North American mosses (Nos. 1-25) (68049, exchange).
- GUADAGNO, ING. MICHELE, Naples, Italy: 300 plants (67558, exchange).
- GUATEMALA, GOVERNMENT OF, Direccion General de Agricultura (through Senor Don Adolfo Tonduz): 3 plants (66783); 60 ferns and a plant from Guatemala (66856, 67152).
- GUERNSEY, Mrs. SARAH E., Independence, Iowa (through Mrs. R. G. Hoes): Satin dress, silk hose, and satin slippers worn by Mrs. Sarah E. Guernsey when elected president general of the National Society of the Daughters of the American Revolution 1907 (68117, loan).
- GUNNELL, BRUCE C., care L. C. Gunnell, Smithsonian Institution, Washington, D. C.: Specimen of Cooper's hawk from Virginia (67554).
- GUNNELL, LEONARD C., Smithsonian Institution: Broad-winged hawk in immature plumage (67093).
- GUTHRIE, A. M., Cortez, Fla. (through Charles T. Earle): Fragment of a fossil tooth of elephant (68214).
- HAAGE AND SCHMIDT, Erfurt, Germany: 6 plants (67380, exchange).
- HAAS, Mrs. CHARLES, Whitewood, S. Dak.: Fossil remains of mammals, crustaceans, and ammonites (67030).
- HAAS, Dr. F. (See under Senckenbergische Naturforschende Gesellschaft.)
- HABERER, Dr. J. V., Utica, N. Y.: Plant from New York (68341).
- HAGAN, Prof. HAROLD R., University of Utah, Salt Lake City, Utah: Bottle containing fertile eggs of the so-called brine shrimp of Great Salt Lake (68145).
- HALF TONE ENGRAVING CO. (LTD.), THE, London, England: 7 half tones in color, reproductions of pictures and various objects (67287).
- HALL, Prof. H. M., University of California, Berkeley, Calif.: 10 specimens of cacti, and 2 plants from California (67694, 67402).  
(See also under California, University of.)
- HALL, Dr. R. O., San Jose, Calif. (through F. L. Hess): A specimen of native copper and cuprite from Ray Consolidated Mines, Ray, Ariz. (68107).
- HALSTED, JAMES M. (See under French Restoration Fund (Inc.).)
- HAMMERMILL PAPER CO., Erie, Pa.: 104 specimens, 26 photographs, and 4 lithographic prints illustrating the manufacture and use of sulphite wood pulp for writing papers (67663).
- HANSEN, P. L., Salt Lake City, Utah: Specimens of jet from southern Utah (67322, 67686).
- HARBAUGH, THOMAS, Washington, D. C.: Barred owl from Brookland, D. C. (67511).
- HARDING, President WARREN G., The White House, Washington, D. C.: American flag which, after receiving military honors in the Sorbonne in the presence of President Poincare, was unfurled with the French flag at the summit of the Eiffel Tower and saluted with 101 guns in celebration of the entry of the United States into the World War on the side of the Allies (68377).
- HARDING, Mrs. WARREN G., The White House, Washington, D. C.: Collection of tropical butterflies (68150).
- HARMAN, P. C., Bayboro, N. C. (through Edward S. Schmid): Bald eagle from North Carolina (67844).

- HARPER, Dr. R. M., University, Ala.: 4 plants from Alabama (67067).
- HARRISON, Sir JOHN B., Georgetown, Demerara, British Guiana: Specimen of new species of *Eupatagus*, collected in Bissex Hill formation, Barbados, by Hon. A. P. Haynes (67970).
- HARTZELL, GEORGE W., Piqua, Ohio (through American Walnut Manufacturers' Association): 2 specimens showing the manufacture of walnut stump-wood veneer (67638).
- HARTZELL WALNUT PROPELLER CO., Piqua, Ohio (through American Walnut Manufacturers' Association, Chicago, Ill.): 3 specimens showing the steps in the manufacture of an American walnut aeroplane propeller (67617).
- HARVARD UNIVERSITY, Cambridge, Mass.:  
*Arnold Arboretum*: (Jamaica Plain) (through C. S. Sargent): 520 North American plants (68042, exchange).  
*Gray Herbarium* (through B. L. Robinson, curator): 951 plants from Sable Island, Marthas Vineyard, and Nova Scotia; fragmentary specimen of plant; specimen of tree fern from Venezuela; 616 plants, mainly from New England and Nova Scotia (66839, 67883, 68061, 68420, exchange).  
*Herbarium and Laboratories of Cryptogamic Botany*: 600 specimens of cryptogams (Centuries 1-6 Reliquiae Farlowianae) (67952, exchange).  
*Museum of Comparative Zoology*: 33 specimens of Cynipidae, representing 17 species (66952, exchange); 10 specimens, 6 species of American oxyrhynch crabs (67256); 10 small rodents; 2 bats (alcoholic specimens) from the Fiji Islands; 14 small mammals; 7 specimens, being paratypes of 4 species of chalcid flies (67728, 67851, 67917, 68045, exchange).
- HARVEY, Mrs. KATHERINE H., Chevy Chase, D. C.: Uniforms and accessories worn by Brig. Gen. William E. Harvey, National Army (14 specimens) (68524).
- HASLAM, D. A., Blythe, Calif.: 6 specimens of dumortierite from California (67925).
- HASLAM & CO. (INC.), FRED, Brooklyn, N. Y.: Surgeon's suture outfit in khaki case (67074).
- HASSELBRING, H., Bureau of Plant Industry, U. S. Department of Agriculture, Washington, D. C.: 2 concretions from Long Island (68440).
- HASTE, GLENN R., U. S. General Land Office, Santa Fe, N. Mex.: Part of a small coiled-ware jar, a splint basket-jar, and a wooden bowl, all found in Chaco Canyon (67332).
- HATCHELL, Mrs. F. H. G., Boyce, Va.: 4 larvae of swallowtail butterfly (67284).
- HATTIGAN, JOSEPH, Washington, D. C.: Skin and skull of a bat (67250).
- HAWAIIAN SUGAR PLANTERS' ASSOCIATION EXPERIMENT STATION, Honolulu, Hawaii: (Through P. H. Timberlake) 62 specimens of fig insects representing 8 species; 7 specimens of carpenter bee; 70 specimens of chalcid flies (many of them fig insects), including 7 named species, one of which is represented by type and paratypes (66804, 67725, 67985); (through O. H. Swezey) 8 flies (67736).
- HAWKINS, Dr. A. C., Wilmington, Del.: Archeological material from Oklahoma, Texas, and Delaware, collected by the donor (66993).
- HAWVER, Mrs. J. C., Bolinas by the Sea, Calif.: 3 ferns from California (67793).
- HAY, Dr. W. P., Washington, D. C.: 25 plus additional paratypes of the bear-animalcule, described by the donor in Proceedings, volume 53, of the Museum, collected on Shackleford jetty, opposite Beaufort, N. C. (68445).

- HAYNES, Miss CAROLINE C., Highlands, N. J.: Plant from Connecticut (67135).
- HEIGHWAY, A. E., Alexandria, Va.: 6 specimens, 4 species, of land shells from Acandi, on the Gulf of Atrato, immediate boundary line of Colombia and Panama (66779).
- HEIKES, VICTOR C., Salt Lake City, Utah: 2 specimens showing free gold in granite from the Relief mine, near Phoenix, Ariz. (67919).
- HELLENBERG CO. (INC.), THE J. B., Coldwater, Mich. (through U. S. Department of Agriculture, Forest Service, Washington, D. C.): 31 specimens of sporting and athletic goods, wands, mallets, etc. (68503).
- HENDERSON, JOHN B., Washington, D. C.: About 800 land shells from Jamaica (68450).
- HENSHAW, HENRY W., Washington, D. C.: Plant from New Hampshire (67205).
- HERIBERTO, Bro. (See under La Salle College.)
- HERING, Dr. MARTIN, Zoologische Museum, Berlin Germany: 40 bred leaf-mining Microlepidoptera, Coleoptera, and Diptera, including several cotypes of new species; 2 paratypes of leaf-mining sawfly, 9 specimens of insects, representing 8 species, one of which is represented by paratypes (67724, 67972, 68325).
- HERRERA, Dr. A. L. (See under Mexican Government, Dirección de Estudios Biológicos.)
- HERRERA, Prof. FORTUNATO, Cuzco, Peru: 4 plants, cacti (68348).
- HESS, FRANK L., U. S. Geological Survey, Washington, D. C.: Ores and minerals from Bolivia, collected for the Museum (67195).
- (See also under John J. Bonner, J. E. Carney, jr., William Elliott, Roger L. Gannett, Dr. R. O. Hall, and Standard Chemical Co.)
- HEWETT, J. F., Good Springs, Nev.: 5 plants from Nevada (67549).
- HIBBARD, RAYMOND R., Buffalo, N. Y.: 31 slabs of Medina sandstone with conodonts, from New York (66970, exchange).
- HILDER, Mrs. F. F., Washington, D. C.: Miscellaneous specimens of ethnology and archeology (66786).
- HILL, Dr. GERALD F. (See under Australian Institute of Tropical Medicine.)
- HILL, Major GEORGE PLACE, Washington, D. C.: Carved wooden mask from North West Africa (68518).
- HILLMAN, HARRY. (See under The Inland Printer.)
- HILTON, Dr. W. A. (See under Pomona College.)
- HIORAM, Bro. (See under Colegio del Sagrado Corazón.)
- HISADA, PAUL K., Washington, D. C.: Carved idol from Urua, Africa (67808).
- HODGE, F. W., Museum of the American Indian, Heye Foundation, New York City: 5 photographs of Australian blacks (67574).
- HOE & CO., R., New York City: Photograph of Hoe octuple press; photograph of Hoe decuple press; 2 catalogues of printing machinery; a pamphlet describing Hoe decuple press, and a booklet, entitled "A Short History of the Printing Press" (68352).
- HOES, Mrs. R. G., Washington, D. C.: Blue waistcoat, white flannel waistcoat, and knee breeches worn by President James Monroe; blue shoulder scarf and silver brocade dress worn by Mrs. James Monroe (67037); a pocket compass owned by President James Monroe (67296); a gold locket of the early part of the nineteenth century (67350). Loan.
- (See also under Mrs. Sarah E. Guernsey, Mrs. Rachel Jackson Lawrence, Donald McLean, and Mrs. Theodore Roosevelt.)
- HOFF, Mrs. JOHN VAN RENSSELAER, Washington, D. C.: Photograph of Col. John Van Rensselaer Hoff, U. S. Army (67990).

- HOFFMAN - LAROCHE CHEMICAL WORKS (INC.), New York City: 22 specimens of medicinal alkaloids (68109).
- HOLLERITH, Miss LUCIA B., Washington, D. C.: Stone plummet found on Tabbs Creek (formerly Kings Creek), just off East River, Mathews County, Va. (67801).
- HOLLISTER, N., Washington, D. C.: Egg of Kumlien's gull from Cumberland Sound (66918); nest of Parula warbler from Washington, D. C. (66947).
- HOLMES, JAMES S., Townsend, Mont.: 22 plants (66891, 66961, 67077).
- HOLMES, Dr. W. H., Washington, D. C.: 13 eighteenth-century line engravings, hand colored with the exception of one (67282); 2 water colors, one a landscape, entitled "Where the Plains Meet the Mountains," and the other a portrait of an old woman (67848).
- HOLZINGER, JOHN M., Winona State Teachers' College, Winona, Minn.: 81 specimens, 30 species, of fresh-water mollusks from the Mississippi River between La Crosse, Wis., and St. Paul, Minn. (67621).  
(See also under Winona State Teachers' College.)
- HOPKINS, Dr. O. B., Imperial Oil Co. (Ltd.), Toronto, Canada (through Dr. T. Wayland Vaughan): Tertiary mollusca, representing 12 species, from Villa Nueva, Department of Bolivar, Colombia, and about 29 species from Sucara Bueno, Colombia (67794).
- HORGAN, STEPHEN H., Orange, N. J.: Copy of "Paper and Ink," January, 1920, printed by offset lithography (66873).
- HORST, Dr. C. J. VAN DER, Amsterdam, Holland: Collection of marine invertebrates (crustaceans and echinoderms) from Curaçao (67190).
- HOUGH, ROMEYN B., Lowville, N. Y.: 6 bird skins from New York (67036, exchange).
- HOWE, H. E. Washington, D. C.: Wreath made of hair from 216 individuals (68427).
- HOWELL, A. B., Pasadena, Calif.: Skins and skulls of 10 small mammals (68243); 9 skins and skull of small mammals (68371, exchange).
- HOWELL, CLAUD, Sayre, Okla.: Abnormal egg of a domestic fowl (67912).
- HOWLAND, FRED L., Lancaster, N. H.: Fish (67746).
- HUBBY, Miss ELLA F., Pasadena, Calif.: Specimen showing crystallized quartz on silicified wood, from the Fossil Forest, Ariz. (67248).
- HUBERT, H. E., New Orleans, La.: 12 fishes, 6 frogs, and 3 salamanders (66800).
- HUCKEL, EARLE W., Germantown, Philadelphia, Pa.: 155 miscellaneous prints, photogravures, engravings, lithographs, and half tones (68212); 19 miscellaneous articles (68216, loan).
- HUGHES, Miss ANNA CHADBOURNE. (See under Smithsonian Institution.)
- HUGHES, Dr. H. A., Phoenix, Ariz.: Skull of a young Pueblo Indian woman (68201).
- HUNTER, DARD, Chillicothe, Ohio: 289 specimens relating to the early methods of making type, including metals, tools, punches, matrices, molds, and type, unfinished and finished, one mold being an original used by Caslon about 1750 (67052); 2 molds for making handmade paper, comprising a bamboo mold (a reproduction of the earliest form of mold from which paper could be taken wet), and a Van Gelder mold used at the "Eendragt" mill, Holland, 1780-1790 (67905); printer's composing stick (for setting type), dated 1604 (68482).
- HUNTINGTON, Dr. GEORGE S. (See under Columbia University, College of Physicians and Surgeons.)

- HUNTSMAN, Prof. A. G. (See under Canadian Government, Biological Board of Canada.)
- HYDE, Mrs. CHARLES C., Washington, D. C.: Feather pelerine (68344).
- ILFORD (LTD.), Ilford, London, England: Illustrated booklet, entitled "Panchromatism" folder, "Ilford Rapid Panchromatic Plates," and a folder containing 4 comparative prints showing the advantages of the panchromatic plates (67220).
- ILLICK, J. THERON, Department of Biology, University of Nanking, Nanking, China: Skull of a wild boar and 2 skulls of deer, all from China; also 4 lizards from Nanking and Kiangsi, China (66883, 68526).
- ILLINGWORTH, Dr. J. F., Bernice Pauahi Bishop Museum, Honolulu, Hawaii: 10 Australian flies (67840, 68228).
- ILLINOIS STATE MUSEUM, Springfield, Ill.: 300 casts of types and other Paleozoic fossils prepared by R. S. Bassler (66980).
- INDIANA, STATE OF, ADJUTANT GENERAL'S OFFICE, Indianapolis, Ind.: Bronze medal, in duplicate, of the type awarded by the State of Indiana to members of the National Guard of that State for service on the Mexican border, 1916 (67022).
- INLAND PRINTER, THE, Chicago, Ill. (through Harry Hillman, editor): 12 half tones reproduced from drawings of "The Early Master Printers," as follows: Laurens Janszoon Coster, Aldus Manutius, William Caxton, William Caslon, Robert Estienne, Louis Elzevir, Isaiah Thomas, John Baskerville, Giambattista Bodoni, Ambroise Firmin Didot, Johann Gutenberg, and Christopher Plantin (67280).
- INSTITUT FÜR SCHIFFS- UND TROPENKRANKHEITEN, Hamburg, Germany (through Dr. E. Martini): 74 mosquitoes (67668).
- INSTITUTO DE LA SALLE, Bogota, Colombia (through J. B. Reeside, jr.): 200 specimens of Mesozoic invertebrates from Colombia (67115).
- INSTITUTO DE LA SALLE, Correo Nunoa, Chile (through Bro. Claude-Joseph): 173 plants from Chile and Bolivia (66806); 131 plants from Chile (66920); 136 plants from South America (67805).
- INTERIOR, DEPARTMENT OF:  
*U. S. Geological Survey:* Type and duplicate collections from Round Mountain, Nev., illustrating Bulletin 725-I, U. S. Geological Survey (67587); 7 specimens of minerals from Mexico (66869); 17 trays of miscellaneous geological material collected by various members of the Survey staff (66896); 6 rock specimens from Osage County, Okla., showing ripple marks and strand marks (66954); iron and copper ore from Culpeper County, Va., collected and transmitted by Marcus L. Goldman (67157); pegmatite from Moscow, Idaho (67158); a piece of glaciated pavement showing grooves and striae and a striated glacial boulder from Washington, D. C. (67187); 4 specimens of spodumene from pegmatite about 12 miles northeast of Rinconada, N. Mex. (67193); brannerite from gold placers near the head of Kelly Gulch, Stanley Basin, Boise County, Idaho, and other uranium-bearing minerals from the gold placer of Carlos Poncia, Centerville, Idaho (67194); about 75 fossil plants, including the types and figured specimens described by F. H. Knowlton in a paper entitled "Fossil Plants from the Tertiary Lake Beds of South-central Colorado" (67291); collections of fossils from Texas and Mexico made by A. C. Trowbridge and party during 1919-20, and collections from eastern Virginia made by W. T. Lee, A. G. Maddren, R. D. Mesler, and W. C. Mansfield in 1918 (67388); 2 specimens of

INTERIOR, DEPARTMENT OF—  
Continued.*U. S. Geological Survey—Contd.*

bementite from western Washington (67400); thorianite crystals from Ceylon, and a specimen of gillespite from Alaska Range, Alaska (67482); a fossil turtle collected by W. T. Thom, jr., in the upper part of Thermopolis shale, Crow Indian Reservation, Big Horn County, Mont. (67536); 49 lots of Tertiary fossils from Mississippi, Alabama, and Florida, collected by C. Wythe Cooke and Julia Gardner in April, May, and June, 1921 (67537); collection of ores and minerals from the Tintic district, Utah, being part of the reference collection illustrating Professional Paper 107, U. S. Geological Survey (67538); collection of miscellaneous geological material from northern Brazil made by E. C. Harder (67581); Miocene and Pleistocene invertebrate fossils from Maryland, collected by W. C. Mansfield in June, 1918 (67602); 14 boxes of thin sections of rocks (67649); a bison skull and remains of other Quaternary vertebrate fossils obtained by J. B. Mertie, jr., in Alaska (67659); vertebrate fossils, including fossil fish remains from Smyrna, Asia Minor; dinosaur and turtle remains from Ojo Alamo, N. Mex.; and Eocene mammalian teeth from near Bayfield and Carracas, Colo. (67705); collection of fossil plants from the Green River formation, Colo., collected by D. E. Winchester in 1917, including type specimens described by F. H. Knowlton in a paper submitted for publication as a Professional Paper, U. S. Geological Survey (67763); metacarpal bone of a large Pleistocene bison collected by Jacob W.

INTERIOR, DEPARTMENT OF—  
Continued.*U. S. Geological Survey—Contd.*

Young, in Quaternary gravels on Sevier River, Piute County, Utah (67768); 13 specimens of chromite, which illustrate two papers by J. S. Diller (67791); specimen of mica with garnet from Sprucepine, N. C. (67996); the type material of the mineral magnesioludwigite from Bog Lake, Cottonwood District, Utah, described by B. S. Butler and W. T. Schaller (68080); 15 specimens of erupted lava from the volcano of San Salvador (68103); thorium-bearing minerals from Ceylon (68249); 11 specimens and 3 boxes of microscopic slides of rocks from the Lassen Peak region, described in the Lassen Peak folio No. 15, U. S. Geological Survey, and 2 boxes of microscopic slides of rocks of the Cascade Range (68386); 23 specimens illustrating some of the phenomena connected with the recent volcanic eruptions of Lassen Peak (68387).

IOWA, STATE UNIVERSITY OF, Department of Zoology, Iowa City, Iowa: 165 specimens of Orthoptera (67775).

ITALIAN GOVERNMENT, THE (through the U. S. Commission of Fine Arts, Charles Moore, chairman): Italian decorations and medals of the World War (5 specimens) (68235).

IVERS, CHARLES E., New York City, and Dr. HENRY S. WASHINGTON, Geophysical Laboratory, Carnegie Institution of Washington, Washington, D. C.: Nephrite celt found along the Paraguassu River, near Lencoes, Balua, Brazil, in November, 1920, by Ivers (67971).

JACKSON, RALPH W., Cambridge, Md.: 152 specimens, 16 lots, of mollusks from Town Point, Dorchester County, Md., and Little

- JACKSON, RALPH W.—Continued.  
Choptank River, Md. (67060); 157 specimens, 14 species, of fresh-water and marine mollusks from Maryland, Minnesota, and New Jersey (68473).
- JAHN, Dr. ALFREDO, Caracas, Venezuela (through H. Pittier): 453 plants from Venezuela (67692, 67780, 68266).
- JAMES, MRS. JULIAN-. (See under Mrs. Theodore Roosevelt.)
- JARDIN BOTANIQUE DE L'ÉTAT, Brussels, Belgium (through Dr. E. de Wildeman, conservateur): 400 plants from the Belgian Kongo (67655, exchange).
- JENKINS & BOGERT MANUFACTURING CO., Kingsfield, Me. (through U. S. Department of Agriculture, Forest Service, Washington, D. C.): 4 specimens of shaving-brush handles and novelty wood turning (68515).
- JEPSON, Prof. WILLIS L., University of California, Berkeley, Calif.: 2 specimens of *Juncus* from California (68065).
- JOHANSEN, FRITS, Department of the Naval Service, Ottawa, Canada: 2 specimens of Mugiloid fishes from Palestine (68058).
- JOHNS HOPKINS UNIVERSITY, Botanical Laboratory, Baltimore, Md.: 7 specimens of Jamaican ferns (67882, exchange).
- JOHNSON, CHARLES, keeper of Loggerhead Light, Tortugas, via Key West, Fla.: 16 birds in alcohol from Tortugas, Fla. (66778).
- JOHNSON, C. W., Boston, Mass.: 6 tropical flies (68278).  
(See also under Boston Society of Natural History.)
- JOHNSON, HARRY, Hynes, Calif.: Collection of plants from Guatemala (67017).
- JOHNSON, Dr. MYRTLE E., National City, Calif.: 21 specimens, 2 species, of crustaceans, from Mission Bay, near San Diego, Calif. (67079).
- JOHNSON, Dr. PAUL B., Washington, D. C.: Human lumbar vertebra (68050).
- JOHNSON & JOHNSON, New Brunswick, N. J.: 47 specimens and 10 photographs illustrating the manufacture of medicated plasters (67586); 56 specimens, 6 descriptive charts, a book, and 28 photographs illustrating the manufacture of surgical dressings (67857).
- JOHNSTON, IVAN M. (See under California Academy of Sciences, and California, University of.)
- JOHNSTONE, Miss MARGARET TAYLOR, Paris, France: 7 Norman peasant caps (68304).
- JONES, F. M., Wilmington, Del. (through F. A. McDermott): Larva of a beetle, from Bachman, Me. (68460).
- JONES, MRS. JAMES K., SR., Washington, D. C.: Mounted head of an elk (68112).
- JONES, STOCKTON W., Chevy Chase, Md.: Double-action Allen & Wheelock percussion cap, single-barrel pistol (67720).
- JOY, ALFRED H. (See under Carnegie Institution of Washington, Mount Wilson Observatory.)
- JUDD, NEIL M., U. S. National Museum: Small earthenware bowl of polychrome Kayenta ware collected during the summer of 1908 from a cliff dwelling in Navaho National Monument, northern Arizona (67333).
- JUDGE, FRED, Hastings, England: 3 pictorial photographs, bromoil transfers (67268).
- JUSTIN, R. R., Vernon, Tex.: English sword of the period of the American Revolution (68345, loan).
- KAMES, J., Jacksonville, Fla.: Marine mollusk from Artson, Morocco, France (68479).
- KANSAS STATE AGRICULTURAL COLLEGE, Manhattan, Kans.: Plant (66946).



- KANSAS, UNIVERSITY OF, Department of Entomology, Lawrence, Kans.: 3 specimens of parasitic flies (Diptera) (67162).
- KAZINSKY, Mrs. J. P., Dawson, Yukon, Canada: Fossil canine tooth of a bear (67477).
- KEELER, Mrs. CHARLES. (See under Nettie Lovisa White.)
- KEENAN, MICHAEL, Springer, N. Mex.: Eggs of moth (68124).
- KEIGHLEY, ALEX., Steeton, near Keighley, England: Brown carbon photograph and 6 pictorial photographs (67345, 67941).
- KELLOGG, C. R., Foochow, China: 5 snakes and 3 frogs from near Foochow (67850).
- KELLY, Dr. HOWARD A., Baltimore, Md.: 2 lizards from Florida (68298); 10 plus specimens of fresh-water oligochaets taken in rain water at Wabasso, St. Lucie County, Fla. (68502).
- KELSEY (INC.), HORATIO, Clinton, Conn. (through U. S. Department of Agriculture, Forest Service, Washington, D. C.): 2 handles of red hickory for hatchet and hammer (68513).
- KENDRICK, EDWARD A., New York City: A book (No. 188) entitled "A Printed Specimen of Caslon Old Style," illustrating various styles of the type mentioned (67172).
- KEYSER, E. W., Washington, D. C.: A Batik sarong, a Batik painting pen, and a Hindu print cloth (67559); Thinkit basket with lid from Alaska (68284) Exchange.
- KIDWELL, GEORGE P., Washington, D. C.: Albino bobolink or reedbird from Georgetown, D. C. (67085).
- KILLIP, E. P., U. S. National Museum: 146 plants from Panama (66812, 67286, 67625); 675 plants (67252); 140 plants from New York (67481); 122 plants from the District of Columbia and vicinity (68186).
- (See also under E. C. Leonard, and Paul C. Standley.)
- KIMBALL, Miss KATHERINE D. (See under Rev. R. R. Stewart.)
- KIMBER, SIDNEY A. (See under University Press, The.)
- KINDLE, Dr. E. M. (See under Canadian Government, Victoria Memorial Museum.)
- KING, GEORGE M. (See under Utah Agricultural College.)
- KING, Col. SAMUEL L., Bristol, Tenn.: Human skull found in a mountain crevice 17 miles from Bristol, Tenn. (67861).
- KINSER, B. M., Eustis, Fla.: Upper and lower cheek teeth of an extinct tapir and an incisor of an extinct species of pocket-gopher (67841).
- KINSEY, Dr. ALFRED C., Department of Zoology, University of Indiana, Bloomington, Ind.: 120 adults and 54 galls of Cynipidae, representing 27 species, 13 of which are represented by paratypes (68323, exchange).
- KIPLING, CAROLINE BALESTIER. (See under Mrs. Josephine Balestier Dunham.)
- KIRTLEY, Dr. C. L., Challis, Idaho: Collection of mineral specimens including ptilolite and associations (67600).
- KITTREDGE, Miss E. M., Proctor, Vt.: 2 plants from Vermont (67516).
- KLEY, PAUL, Gallup, N. Mex.: 2 pieces of ancient pottery from a ruin of unknown type about 6 miles southwest from Gallup (67300).
- KNICKERBOCKER, C., Claypool, Ariz.: Examples of opalescent silica with dendritic markings, and a small piece of silver-lead ore from Arizona (67828).
- KNIGHT, H. H., University Farm, St. Paul, Minn.: 16 plant bugs, being paratypes of 10 species (67415).
- KNY - SCHEERER CORPORATION OF AMERICA, THE, New York City: 112 surgical needles and 10 needle holders (66912).
- KOBER, Dr. GEORGE M., School of Medicine, Georgetown University, Washington, D. C.: Portrait of

- KOBER, Dr. GEORGE M.—Continued.  
 Abraham Lincoln, by W. Cogswell (67439).
- KRAUS RESEARCH LABORATORIES (INC.), New York City (through E. S. Larsen): Examples of diaspore from Missouri (67689).
- LAFFERTY, CLAUDE, Vineland, N. J.: Skin and skull of a bat from Vineland, N. J. (67833).
- LANCEY, Mrs. E. E. DE, Geneva, N. Y.: Collection consisting of 2 glass bottles, die for medal, sulphur cast of church seal, 2 terra-cotta heads, Italian coin embedded in lava, piece of marble from Athens, crude clay candlestick, and 3 clay fragments (67750, deposit).
- LANDER, Miss A. H., Alexandria, Va.: Buff syrup pitcher with lid, of English make (68253).
- LANDIS, Col. J. F. REYNOLDS, U. S. Army (retired). (See under Aztec Club of 1847.)
- LANE, Dr. H. M., Harviell, Mo.: Plant from Missouri (67106).
- LANE, I. C., Phoenix, Ariz.: 2 specimens of tufa from the quarries of The Great Western Tufa and Cement Co. at Kirkland, Ariz. (67450).
- LARSEN, E. S. (See under Kraus Research Laboratories, Inc.)
- LA SALLE COLLEGE, Panama City, Panama (through Bro. Heriberto): 300 plants from Panama and the Canal Zone (67733).
- LATCHFORD, Hon. F. R., Toronto, Canada: 3 mollusks from the Atnarko River, British Columbia; 5 species of fresh-water shells from Ontario and Quebec, Canada (67685, 68209).
- LATHAM, Roy, Orient, N. Y.: Plant, fresh-water mollusk, and a fern, all from New York (67721, 67898, 68240).
- LAWRENCE, Mrs. RACHEL JACKSON, Ladies Hermitage Association, Nashville, Tenn. (through Mrs. R. G. Hoes, Washington, D. C.): Costume worn by Mrs. Andrew Jackson, jr., on the occasion of a reception given
- LAWRENCE, Mrs. RACHEL JACKSON—Continued.  
 in her honor in the White House in 1831 (67902, loan).
- LAWTON, CHARLES F., New Bedford, Mass.: Earthenware turtle effigy found near Winslow, Ariz. (67890).
- LEDERER, Mrs. A. M., Washington, D. C.: 6 watches (68066, loan).
- LEE, JOSEPH, Passagrille, Fla.: Marine mollusk, and a crab (68476).
- LEFEVRE, ROBERT, Washington, D. C.: Soft-ground etching by T. Francois Simon, A. R. E. (66985, loan).
- LEIM, A. H. (See under Canadian Government, Biological Board of Canada, and Toronto, University of.)
- LEONARD, E. C., U. S. National Museum: 52 plants from Maryland and Virginia; 31 plants from Ohio (67480; 67781).
- LEONARD, E. C., and E. P. KILLIP, U. S. National Museum: 1,200 plants from southern Virginia, and 163 plants from the District of Columbia and vicinity (67003, 68519).
- LESCH, RUDOLF, New York City: 6 chromo collotypes (68178).
- LESHER, WHITMAN & CO. (INC.), New York City: 2 samples of mo-hair net (67212).
- LEVIS, HOWARD C., London, England: Wood block of George Washington, engraved by Dr. Alexander Anderson, America's first important wood engraver; a copy of "The American Orator," New Haven, 1818, in which this wood block was printed, and a modern impression of it; also a sixteenth-century engraved wood block and three modern impressions of it (67311).
- LEWTON, F. L., U. S. National Museum: An 18-inch bolt of apple wood (66936).
- LINDMAN, Dr. CARL. (See under Riksmuseets Botaniska Avdelning.)
- LILLY, WILLIAM, New York City: Ethnological and biological specimens from Burma, India, and Alaska, collected by the late Samuel Lilly, M. D., when consul general to

## LILLY, WILLIAM—Continued.

British India, in 1861–1862, and by his son and grandson (the donor) in Alaska in 1905 (66930); ethnological objects from various localities in North America (67593); specimens of Indian beaded and leather work (68160); United States commemorative medals (6 specimens), a British commemorative medal, and 2 Mexican pesos (68247); collection of Indian, Chinese, and Mexican handiwork (68301).

LILLY AND CO., ELI, Indianapolis, Ind.: 29 specimens and 14 photographs illustrating the manufacture of medicated pills and tablets (66991).

LINDMAN, DR. CARL. (See under Riksmuseets Botaniska Avdelning.)

LINDSEY, DR. A. W., Decatur, Ill.: 3 butterflies (66814).

LITTELL, WILLIAM T., Washington, D. C.: Horsehair worm (66830).

LOMAX, J. ARTHUR, Cardiff, Wales: 2 prints; namely, "Springtime" and "Girl Drinking" (67695).

LONG, The Misses, Washington, D. C.: Portraits of Henry Bradford Dearth and his wife, Abby Taylor Dearth, painted about 1840; and 6 carpet brasses of the early part of the nineteenth century (68478, loan).

LOOMIS, Miss ANNIE E., Washington, D. C.: 2 framed silhouettes and a doll of the early part of the nineteenth century (67462).

LOPEZ, JOSEPH E. (See under The Continental Insurance Co.)

LOVE, Miss BELLE, Cherrydale, Va.: Mahogany embroidery frame mounted on turned posts (66902).

LUDLOW, DR. CLARA S., Washington, D. C.: Valentine written in 1849, with original postmarked corner (67681).

LUISIER, Father ALPHONSE, S. J., Colégio de la Guardia, Pentevedra, Spain: 36 specimens of mosses from Spain and Brazil (68206, exchange).

LUNGREN, CHARLES B., Ozona, Fla.: 16 specimens, 15 species, of marine mollusks from Florida, Barbados, and Dutch West Indies (67056); collection of mollusks and marine invertebrates from the Gulf of Mexico, west of Ozona, Fla. (68121); 12 specimens, 9 species, of marine mollusks from Florida and the West Indies (68144).

LYON, DR. M. W., JR., South Bend, Ind.: 47 specimens, 1 species, of Pleistocene mollusks from the floor of the Furnessville Blowout, Indiana dunes of Lake Michigan (67473); skins and skulls of 2 mice (68362).

LYONS, H. G. (See under British Government, Science Museum.)

MCATEE, W. L., Bureau of Biological Survey, U. S. Department of Agriculture, Washington, D. C.: Shark and dolphin teeth collected at Calvert Cliffs, Md., by Jules Maillet (67818).

(See also under Agriculture, Department of, Bureau of Biological Survey, and Carl F. Drake.)

MCCAULEY, ROBERT H., Hagerstown, Md.: Spurious Indian pipe (67623).

MCCLELLAN, Hon. GEORGE B., Princeton University, Princeton, N. J.: Scarf pin, penknife, pocketbook, and 2 pairs of presentation revolvers in cases, with accessories, owned by Maj. Gen. George B. McClellan, U. S. Army; also a gold Sixth Corps badge worn by Maj. Gen. John Sedgwick when mortally wounded, May 9, 1864, and a lock of his hair sent by him at the time to Maj. Gen. McClellan (68019).

MCCORMICK, Hon. MEDILL, United States Senate, Washington, D. C.: Sectional relief maps of northern France in plaster and papier-mâché, showing the British and French battle fronts during the World War (119 specimens) (67385).

MCCOY, GEORGE D., U. S. National Museum: Skin and skull of a bat taken in the Natural History Building of the National Museum (67028).

- McCRACKEN, Dr. ISABEL. (See under Stanford University.)
- McDERMOTT, F. A. (See under F. M. Jones.)
- McDUNNOUGH, Dr. J. (See under Canadian Government, Department of Agriculture.)
- McGREGOR, A. G., Chicago, Ill.: A photograph of a ruling machine for the McDonough color process (67317).
- McLEAN, DONALD, Riderwood, Md. (through Mrs. R. G. Hoes): Velvet dress worn by Mrs. Donald McLean when president general of the National Society of the Daughters of the American Revolution at a reception given in honor of her election to a second term, April, 1907 (68059, loan).
- McNEILL, FRANK A. (See under Australian Museum.)
- MAGNESIA ASSOCIATION OF AMERICA, THE, Philadelphia, Pa.: Framed panel showing process of manufacture of magnesia insulation material; also framed technologic chart of insulating efficiencies (68157).
- MAKI, MORCHRO. (See under Taihoku Normal School.)
- MALLINSON & CO. (INC.), H. R., New York City: 2 specimens of novelty silk fabrics, known as "Bokhara Prints" (68046).
- MANCHESTER, J. G., New York City (through Dr. Edgar T. Wherry): Specimen of talc in calcite and an ilmenite crystal from Cumberland, R. I. (66911).
- MANITOBA, UNIVERSITY OF, Winnipeg, Canada: 32 specimens of rocks and ores from northwestern Manitoba copper districts (67859, exchange).
- MANN, Dr. WILLIAM M. (See under Mulford Biological Exploration of the Amazon Basin.)
- MANSFIELD, GEORGE R., Washington, D. C.: Brown silk umbrella, with carved ivory handle, owned during the early part of the nineteenth century by Mrs. Harvey
- MANSFIELD, GEORGE R.—Continued.  
C. Mackay, of Gloucester, Mass. (68181).
- MARCHAL, Dr. PAUL, Station de Entomologique, Paris, France (through Department of Agriculture, Bureau of Entomology, Washington, D. C.): 16 adults and 16 slides of Hessian-fly parasites (66898).
- MARINE BIOLOGICAL LABORATORY, Woods Hole, Mass. (through George M. Gray): Gecko from Key West, Fla. (68372).
- MARSHALL, BYRON C., Imboden, Ark.: 9 specimens, 4 species, of land and fresh-water mollusks, probably from Imboden, Ark. (68039); 9 frogs, 3 leeches, 10 salamanders, 2 tadpoles, a small collection of mollusks and insects, collected by the donor in Lawrence County, Ark. (68100, 68182, 68252).
- MARSHALL, ERNEST B., Laurel, Md.: Blue jay, 5 sharp-shinned hawks, 4 Cooper's hawks, 6 birds, and a crow, 3 skulls of raccoons, the skull of a fox, and skull of a mink; all from Maryland (67090; 67210; 67305; 67378; 67547; 67583; 67836; 67846; 68043; 68258).
- MARSHALL, GEORGE, U. S. National Museum: Field sparrow, song sparrow, meadow lark, skin and skull of a mink, and 3 skulls of foxes, tree sparrow, shrew, rusty blackbird, all from Maryland (67098, 67379, 67748, 67834, 68259, 68359, 68368); skull of a weasel from Occoquan, Va. (67935); skull of an opossum, skull of a raccoon, and skull of a mink (68285).
- MARSHALL, Miss M. A., Still River, Mass.: 2 ferns from Florida (67813).
- MARTIN, Dr. JAMES C., New York City: A block of hard pitch from the pitch lake at Guanoco, State of Monagas, Venezuela (66835).
- MARTIN, Dr. J. W., Kirksville, Mo.: Worm (67886).
- MARTINI, Dr. E. (See under Institut für Schiffs-und Tropenkrankheiten.)

- MARYLAND GEOLOGICAL SURVEY, Baltimore, Md.: 3 type specimens of vertebrate fossils (67650, deposit).
- MARYLAND STATE COLLEGE OF AGRICULTURE, College Park, Md.: Plant (66935).
- MARVIN, M. W., Atnarko, B. C., Canada: 12 fresh-water mollusks from Atnarko (67669).
- MATTHEWS-NORTHRUP WORKS, THE, Buffalo, N. Y.: 9 examples of half tones in three colors and 14 examples of half tones in colors and a map in colors (66963, 66988).
- MATTHEWS, RANSOM, Selma, Calif.: 78 spark plugs used on all types of gasoline engines and 4 ignition testers (67579); Miller carburetor, make and break igniter and coil, Mot-singer friction-drive low-tension magneto, and Hess-Ives color camera with accessories (67942) Loan.
- MATUTE, Dr. FRANCISCO A., La Ceiba, Honduras (through Department of State): A lantern fly (67315).
- MAUT, CHARLES F., Seamen's Institute, Honolulu, Hawaii: 6 specimens, 5 species, of marine shells from Oahu (67809).
- MAYOR, Dr. A. G., Tucson, Ariz. (through Dr. T. Wayland Vaughan): 25 specimens of late Tertiary (?) fossils from elevated reefs, Fiji Islands (67933).
- MAYOR, JUAN A. SOTTO, San Pedro Sula, Honduras: 908 specimens, 158 species, of marine mollusks from Mananao, Cuba (66799).
- MEARNS, ESTATE OF Dr. E. A. (through Dr. C. W. Richmond): 3 lithographs, 2 pencil drawings (67561).
- MEDICI SOCIETY OF AMERICA (INC.), THE, Boston, Mass: 9 colotypes in colors, reproductions of original paintings (67180).
- MELANDER, Prof. A. L., Pullman, Wash.: 8 specimens (types) of a fly (67821).
- MELUK, AMIN, Cartagena, Colombia: Sample of silk cocoons and 2 sam-
- MELUK, AMIN—Continued.  
ples of floss silk spun in Colombia (67025).
- MENEFEE, Dr. J., Everglade, Fla.: Tooth of a killer whale (67666).  
(See also under Dick Myers.)
- MERITT, Hon. E. B. (See under Chee Dodge.)
- MEXICAN GOVERNMENT:  
*Direccion de Estudios Biologicos*, Mexico, D. F., Mexico (through Dr. A. L. Herrera, director): 76 plants (67218); collection of marine invertebrates, from Lower California, comprising 1 specimen of medusa, 2 alcyonarians, 3 lots of echinoderms, 1 lot of crabs, and 18 lots of mollusks (68136); mollusks from Cuernavaca, Morelos, Mexico (68464).  
*National Museum of Natural History of Mexico*, Mexico, Mexico: 2 specimens of the mineral ramirite (67578); an example of the Niquipileo (Toluca), Mexico, meteoric iron (67877); specimen of chalcedony with red semi-opal from the Sierra de Santa Rosa, State of Guanajuato, Mexico (68110) Exchange.
- MEXICAN GULF OIL CO., Tampico, Mexico (through Dr. L. W. Stephenson): 70 specimens of Cretaceous fossils from Mexico (66790).
- MICHAUD BROTHERS, Terrace, B. C.: Specimen of Gorgonian coral (68159).
- MILFORD PINK-VICTORIA WHITE GRANITE CO., THE, Milford, Mass.: A 4-inch cube of Victoria white granite (68192).
- MILLAR, AUSTIN Q., Murfreesboro, Ark.: Examples of the diamond-bearing rock from the Ozark Diamond Mine, Pike County, Ark. (68408).
- MILLER, Prof. ARTHUR M., University of Kentucky, Lexington, Ky.: 2 specimens of bentonite and 3 lots of fossils from the Ordovician rocks of Kentucky (67375).

- MILLER, CHARLES F. ABERCROMBIE (through W. R. Tuckerman, Edgemoor, Bethesda, Md.): 3 pieces of silver, consisting of a porringer, ladle, and spoon, of the eighteenth century (67354, loan).
- MILLER, GERRIT S., JR., U. S. National Museum: Scorpion, 7 lizards, and 3 frogs collected at Idyllwild, Riverside County, Calif. (66798); 6 plants from Arizona (66903); 10 plants from California (66904); jaw of a moose from Eagle, Alaska, hawk owl from Fairbanks, Alaska, and the following fossils—namely, tooth of a horse, lower jaw of a bison, and 2 bones of a sheep from Dawson, Yukon, Canada (68023).
- MILLER, MISS JANE FARNHAM, Washington, D. C.: Herbarium of the late Mary F. Miller, consisting of several thousand specimens, mainly mosses and lichens, from New York and the vicinity of Washington, D. C. (67270).
- MILLNER, I. B., U. S. Geological Survey, Washington, D. C.: Exhibit of watch-making machinery parts (66990); colored lithograph of the U. S. S. *Hartford* (67104); log book of the U. S. brig *Spark*, 1819-1920 (67958).
- MINGUS, DR. EVERETT, Marshfield, Oreg.: 12 specimens of carbonized wood from Coos County, Oreg. (66892).
- MINNESOTA, UNIVERSITY OF, Department of Botany, Minneapolis, Minn. (through Prof. F. K. Butters): 4 ferns (66809, exchange).
- MISONNE, LEONARD, Gilly, Belgium: 5 pictorial photographs (67269).
- MISSOURI, STATE OF, ADJUTANT GENERAL'S OFFICE, Jefferson City, Mo.: Bronze badges of the types awarded to Missouri volunteers (2 specimens) and to members of the National Guard of Missouri (2 specimens) for service during the war with Spain, 1898; bronze badge of the type awarded to members of the National Guard of Missouri during the mobilization on the Mexican
- MISSOURI, STATE OF, ADJUTANT GENERAL'S OFFICE—Continued. border, 1916 (2 specimens); bronze badges of the types awarded to citizens of Missouri for service with the United States forces (2 specimens) and to members of the National Guard of Missouri (2 specimens) for service during the World War, 1917-1919 (67000).
- MITMAN, DR. S. U., Bethlehem, Pa.: Set of 70 lantern slides on the subject of transportation (67741).
- MONNIER, ALFRED, Washington, D. C.: Mounted specimen each of the green woodpecker and gray-headed green woodpecker from Switzerland (68087).
- MONROE CALCULATING MACHINE CO., Orange, N. J. (through J. R. Monroe, president): 3 calculating machines illustrating steps in the development of the Monroe calculating machine—namely, the Baldwin calculator of 1902 and the Monroe calculating machine, model of 1908 (gift), and the Monroe calculating machine introduced in October, 1921 (loan) (67982).
- MOORE, CHARLES. (See under Belgian, British, Italian, and Portuguese Governments.)
- MOORES, HON. MERRILL, House of Representatives, Washington, D. C.: Butterflies and beetles from Colombia (67955).
- MORROW, Miss C. F., St. Thomas, Virgin Islands of the United States: 47 plants from the island of St. John (67120).
- MORSE, Prof. A. O. Wellesley, Mass.: 3 specimens of a rare grasshopper from New England (67599).
- MORTON, Mrs. GEO. W., Washington, D. C.: 13 terra-cotta heads, figurines, etc., from Salvashuci, 70 miles up Panuco River, Mexico (67285).
- MOSELEY, Prof. E. L., State Normal School, Bowling Green, Ohio: 2 plants from Ohio (68125).
- MOSES, CARL M., South Charleston, W. Va.: A piece of fossil wood (68389).

- MOTTER, Dr. MURRAY GALT, Washington, D. C.: 3 reports from the Council on Pharmacy and Chemistry of the American Medical Association (67223).
- MOXLEY, GEORGE L., Los Angeles, Calif.: 4 plants from California (67605).
- MOZNETTE, G. F., Miami, Fla.: 2 moths, a crane fly, and 58 mosquitoes (67635).
- MUENSCHER, W. C., New York State College of Agriculture, Cornell University, Ithaca, N. Y.: 700 plants from New York State (66864).
- MULFORD BIOLOGICAL EXPLORATION OF THE AMAZON BASIN, care H. K. Mulford Co., Philadelphia, Pa. (through Dr. W. M. Mann, assistant director): Collection of ethnological specimens, 100,003 insects, 33 mammals, and 150 shells, crustaceans, and textiles, collected in Bolivia by Dr. Mann while a member of the expedition (68373).
- MULFORD CO., H. K., Philadelphia, Pa.: 15 colored transparencies and 2 bromide enlargements illustrating the preparation of vaccines and serums (68208); 4 charts mounted with specimens, photographs, etc., showing the preparation of vaccines and serums for the prevention and treatment of rabies, whooping cough, and typhoid fever; also 2 charts illustrating diagnostic skin tests (68461).
- MUNDER & CO., NORMAN T. A., Baltimore, Md.: Half tone of Benjamin Franklin, printer, and 3 folders with half tones (67290); 2 copies of a pamphlet printed by Norman T. A. Munder & Co., entitled "The Story of the Alphabet," by Otto G. Ege (67406).
- MUNROE, Miss HELEN, Smithsonian Institution: Sword, pair of epaulets, 2 sashes, and belt owned during the Civil War by Capt. Frank Munroe, U. S. Marine Corps; also his commission signed by President Lincoln and a naval uniform coat and cap of the same period (67639).
- MUNSON, A. F., East Falls Church, Va.: Tooth of an edentate from near Natchez, Miss. (67408).
- MUNZ, Dr. PHILIP A., Pomona College, Claremont, Calif.: 2 plants (68383).  
(See also under Pomona College.)
- MURAY, NICKOLAS, New York City: 6 photographic prints (67799).
- MUSÉE D'HISTOIRE NATURELLE, Berne, Switzerland (through Dr. Ch. Ferrière): 96 ichneumon flies, representing 58 species (68122, exchange).
- MUSEO NACIONAL, San Jose, Costa Rica (through A. Alfaro): 766 mosquitoes (67045); 412 Costa Rican mosquitoes (67276).
- MUSEO NACIONAL DE HISTORIA NATURAL, Buenos Aires, Argentina (through M. Doello-Jurado): 106 specimens, 25 species, of land, fresh-water and marine mollusks from Argentina, Uruguay, and Chile (68319).
- MUSEO NACIONAL DE RIO DE JANEIRO, Rio de Janeiro, Brazil: Ethnological specimens from the Indians of Brazil (68489, exchange).
- MUSEU PAULISTA, Sao Paulo, Brazil (through A. d'E. Taunay, director): 30 specimens, 7 species, of crustaceans, 1 polychaet worm (paratype of a new species), and a sea-urchin (66925).
- MUSEUM NATIONAL D'HISTOIRE NATURELLE, Paris, France: Examples of the meteoric stones from Chassigny, France, and Sevrukovo, Russia (67185, exchange).
- MUSEUM OF THE AMERICAN INDIAN, HEYE FOUNDATION, New York City: Hawikuh skeletal material (67504).
- MYER, W. E., Nashville, Tenn.: 2 nearly complete Indian skeletons and bones of a small child (67355).
- MYERS, Dick, Everglade, Fla. (through Dr. J. Menefee): Shell ornament found on Takahatchee Island, Fla. (67597).

- NAGLE, FRANK, Alexandria, Va.: Barred owl from Virginia (67494).
- NAKAYAMA, SHONOSUKE, Yokohama, Japan (through U. S. Department of Agriculture, Bureau of Entomology, Washington, D. C.): 2 paratypes of chalcid flies (67594).
- NANKING, UNIVERSITY OF, College of Agriculture and Forestry, Nanking, China (through Albert N. Steward): 49 Chinese ferns (67968).
- NATIONAL ACADEMY OF SCIENCES, Washington, D. C. (through Paul Brockett, assistant secretary): Bronze replicas of the gold medal awarded by the National Academy of Sciences to Charles Wardell Stiles for eminence in the application of science to the public welfare and of the medal issued by the University of Virginia in commemoration of the centennial anniversary of the university (67109, deposit); bronze replica of the Mary Clark Thompson gold medal awarded to Dr. Charles D. Walcott in 1921 by the National Academy of Sciences for research in geology and paleontology (67515, loan).
- NATIONAL ASSOCIATION OF COTTON MANUFACTURERS, Boston, Mass. (through Dr. C. J. H. Woodbury, secretary): 2 copies of the book plate of the association showing "The Weaver," engraved by Georg Pencz in Nuremberg, 1530, the earliest known engraving on a textile subject (67226).
- NATIONAL GEOGRAPHIC SOCIETY, Washington, D. C.: Collection of earthenware vessels and human bones obtained from ancient ruins in an unnamed canyon extending southeast from Manuelito, N. Mex. (67368).
- (See also under Peruvian Expedition of 1914-15.)
- NATIONAL MUSEUM OF NATURAL HISTORY OF MEXICO. (See under Mexican Government.)
- NATIONAL RIFLE ASSOCIATION OF AMERICA, Washington, D. C. (through Brig. Gen. Fred. H. Phil-
- NATIONAL RIFLE ASSOCIATION OF AMERICA—Continued.  
lips, jr., secretary): Medals, badges, buttons, clasps, and ribbons of the National Rifle Association of America (99 specimens) (68063).
- NATIONAL SOUTHEASTERN UNIVERSITY, Nanking, China (through C. Ping, zoological department): Reptiles, 11 lots of fishes, 5 lots of mollusks, 1 lot of insects, and 6 lots of marine invertebrates from China (68417, exchange).
- NATURHISTORISCHES STAATSMUSEUM, Vienna, Austria: 300 cryptogamic plants (68203, exchange).
- NAVY DEPARTMENT:  
Oil portrait of Rear Admiral W. S. Benson, U. S. Navy, by Dana Pond (66854); bow section of motor launch (66931); models of aircraft used during the World War (67708, loan).  
*Bureau of Aeronautics*: Photographic enlargements, showing the history of the airplane catapult (32 specimens) (68262, loan).  
*Bureau of Engineering*: 6 models of battleship propellers (67466).  
*U. S. Marine Corps*: 2 copies of the badge worn by officers of the U. S. Marine Corps holding brevet commissions (67852); relief model of Belleau Wood Region, France: flags, decorations, and U. S. Marine Corps uniforms, with accessories (68509).
- NEBRASKA, STATE OF, ADJUTANT GENERAL'S DEPARTMENT, Lincoln, Nebr.: Engraved certificate of the type issued by the State of Nebraska to residents of that State for military service during the World War (67209).
- NELSON, ELIAS, Yakima, Wash.: 2 plants from Washington (67446); 3 plants (68375).
- NELSON, Prof. J. C., Salem, Oreg.: 8 plants from Oregon (67008, 67062, 67139, 67169, 67484, 67981); 2 cultivated ferns (68244).



- NEW HAMPSHIRE, STATE OF, ADJUTANT GENERAL'S OFFICE, Concord, N. H.: Bronze badge, in duplicate, of the type awarded by the State of New Hampshire to citizens of the State for service during the World War (67021).
- NEW JERSEY, STATE OF, ADJUTANT GENERAL'S OFFICE, Trenton, N. J.: Bronze badge, in duplicate, of the type awarded by the State of New Jersey to citizens of that State for service during the World War (67019).
- NEWTON & THOMPSON MANUFACTURING CO., Brandon, Vt. (through U. S. Department of Agriculture, Forest Service, Washington, D. C.): 150 toys and toy and game parts showing irregular wood turning (68522).
- NEW YORK BOTANICAL GARDEN, Bronx Park, New York City (through Dr. N. L. Britton, director): 540 plants; 148 ferns, all from Trinidad (66781; 66796; 66801, 67367, 67569, 67006, 67143, 68268; 68295); 3 ferns, 2 specimens of mosses, and 4 plants, all from the West Indies (66823, 67043, 67097); 191 ferns and a plant, all from Cuba (66855, 67160, 67709; 67401); 62 plants and 2 photographs of plants (66934, 67071, 67177, 67251, 67812, 68421); 103 plants and a specimen of grass from British Guiana (67326, 68076); 13 specimens of mosses from Santa Catalina Island, California; 163 mosses from Trinidad and Porto Rico; 17 mosses (67565, 67626, 67797); 5 living plants (68336) Exchange.
- NEW YORK, STATE OF, ADJUTANT GENERAL'S OFFICE, Albany, N. Y.: Bronze badge, in duplicate, of the type awarded by the State of New York to members of the National Guard of that State for service on the Mexican border (67124); bronze badge of the type awarded by the State of New York to citizens of that State for services during the World War (67215).
- NEW YORK, UNIVERSITY OF THE STATE OF.—*The State Museum*, Albany, N. Y.: A collection of fossil entomostraca and foraminifera, known as the T. Rupert Jones Collection, and manuscripts pertaining to their investigation (67951) Loan.
- NOBLE, C. E., Mina, Nev. (through W. T. Schaller): Specimen of the mineral natrolite from Mina, Nev. (66909).
- NORBERG, BERT, Latouche, Alaska: Basket fish (67743).
- NORONHA, DR. ADOLFO CESAR DE, Funchal, Madeira: 37 specimens, 5 species, of crustaceans collected by the donor at the Madeira Islands (67598).
- NORRIS, J. PARKER, Philadelphia, Pa.: 22 eggs, chiefly from India (67364); 2 cormorant eggs from Australia (67369) Exchange.
- NORTH CAROLINA, STATE OF, ADJUTANT GENERAL'S DEPARTMENT, Raleigh, N. C.: Bronze service badge of the type issued by the State of North Carolina for service during the World War (2 copies) (66967).
- NORTH CAROLINA DEPARTMENT OF AGRICULTURE, Division of Entomology, Raleigh, N. C.: 5 flies (types of 3 species) (68147).
- NORTHCOT, Mr., Luray, Va.: A lot of human bones in stalagmite, dug up on the property of the donor (67039).
- NORTH DAKOTA AGRICULTURAL COLLEGE, Agricultural College N. Dak. (through Prof. O. A. Stevens): 7 plants (67874, exchange).
- NORTHWEST MISSOURI STATE TEACHERS COLLEGE, THE, Maryville, Mo. (through Bert Cooper, director of extension): A small sample of white oak wood taken from a log unearthed in new channel for Platte River, near Sheridan, Mo. (68510).

- NORTON, J. B., Hartsville, S. C.: Fulgurites from a sand dune at Cape Henry, Va. (67665), and 118 plants from South Carolina (67673, exchange).
- NOTMAN, HOWARD, Brooklyn, N. Y.: 10 specimens of beetles (67575).
- NURNBERG THERMOMETER CO., THE, New York City: A series of specimens showing the process of making clinical thermometers (66863).
- OBERTHÜR, MONS. CHARLES, Rennes Ile et Vilaine, France: 90 butterflies from Tibet (68329).
- O'CONNOR, HUGH, Alliance, Nebr.: Teeth of fossil sharks (67747).
- O'DELL, W. S., Ottawa, Canada: 4 specimens of phyllopoets from Canada (67335).
- O'DONOGHUE, Prof. CHARLES H., Biological Station, Nanaimo, B. C.: 9 specimens, 2 species, of shrimps collected in or near the beds of *Zostera marina*, at low tides in Departure Bay, Vancouver Island, British Columbia (67092).
- OHLSON, CARL A., Washington, D. C.: Bronze and iron coins of Sweden (4 specimens) (66922).
- OLDTOWN REALTY COMPANY, Oldtown, Me. (through U. S. Department of Agriculture, Forest Service, Washington, D. C.): 14 specimens of mop and dust brush handles, finger and comber blocks (68521).
- OLD WORLD ARTS (INC.), New York City: Models of 3 ships of the fifteenth century illustrating the designs of the vessels "Santa Maria," "Pinta," and "Nina" used by Columbus in 1492 (67059).
- O'LEARY, E. B., Bureau of Entomology, U. S. Department of Agriculture, Washington, D. C.: Tanned skin of an anaconda (68297).
- OLMSTED, A. J., U. S. National Museum: 25 photographs of snow crystals (68020).
- OLMSTED, HELEN A., and ELIZABETH M., Washington, D. C.: 2 daguerreotypes, 5 ambrotypes, and 4 tintypes (67995, loan).
- OLSSON, AXEL, Paleontological Laboratory, Cornell University, Ithaca, N. Y.: 5 species of mollusks from the Bay of Panama (68070).
- O'NEILL, Rev. J., Salisbury, Rhodesia, South Africa: 90 specimens of tropical miscellaneous insects (68189).
- ORCUTT, C. R., La Jolla, Calif.: Plant from southern California (67948); 20 plants, including 8 cacti, and 7 lots of bryozoa (68392).
- OREGON, STATE OF, ADJUTANT GENERAL'S OFFICE, Salem, Oreg.: Bronze medal, in duplicate, of the type issued by the State of Oregon for service during the World War (67058).
- OREGON STATE AGRICULTURAL COLLEGE, Corvallis, Oreg.: 2 plants from Mount Hood, Oreg. (67128).
- ORNYSKI, JOHN B., Mexico, D. F., Mexico: Series of Lower California fossils (67306).
- ORTEGA, Señor JESÚS GONZALES, Mazatlan, Sinaloa, Mexico: 18 sheets of reproductions of Mexican hieroglyphics (67080); 193 plants (67154, 68340); 282 plants from Mexico (67397, 68289, 68321).
- OSHIMA, Dr. M., Institute of Science, Taihoku, Formosa: 24 specimens, 6 species, of crustaceans from Nampoow, Suow District, Formosa, collected by Dr. Oshima (67518).
- OTIS, IRA C., Seattle, Wash.: 17 ferns from Washington (67497); 46 plants (68106, exchange).
- OVER, Prof. W. H. (See under South Dakota, University of.)
- PACK, HERBERT J. (See under Utah Agricultural College.)
- PADILLA, Señor Dr. DON SISTO ALBERTO, Ahuachapan, El Salvador: Plant and 2 bird skins (67356); about 100 plants from El Salvador (68459).
- PAINE, P. R., JR., Charleston, S. C.: Sample of wood perforated by "Salt-water fleas" (67471).
- PALMER, WILLIAM (through Mrs. Arminia Palmer), Washington, D. C.: 2,972 bird skins, 152 skulls

- PALMER, WILLIAM—Continued.  
of birds, and a collection of plants (68380, bequest).
- PARIS - LYON - MEDITERRANEE RAILWAY, New York City: 13 chromolithographic posters as issued by the French railways (67893).
- PARISH, S. B., University of California, Berkeley, Calif.: 2 specimens of cactus from the Colorado Desert, Calif. (68347).
- PARKE, DAVIS & CO., Detroit, Mich.: 10 specimens of narcotic medicines (68105).
- PARKS, WILLIAM S. (See under Sons of the American Revolution, National Society of the.)
- PARMAN, D. C., Uvalde, Tex.: Plant from Texas (67563).
- PARMELEE, SOLON W., Washington, D. C.: Specimen of double yellow-head parrot, with abnormal coloration (66842).
- PARRIS, W. G., Wirmingham, Tenn.: 80 specimens, 22 species, of land and fresh-water mollusks, 8 fossil brachiopods, and a small crystal from the vicinity of Wirmingham, Tenn. (67957).
- PARTRIDGE, A. E., Seattle, Wash.: Archeological and ethnological material from Washington, Missouri, and Illinois (67528).
- PATTISON, Mrs. S. L., Canutillo, Tex.: 10 plants (66838).
- PAYNE, Prof. F., University of Indiana, Bloomington, Ind. (through Department of Commerce, Bureau of Fisheries, Washington, D. C.): 11 specimens of fresh-water Medusae, collected in Boss Lake, Ind. (68267).
- PAYSON, Prof. EDWIN B., Department of Botany, University of Wyoming, Laramie, Wyo.: Plant from Wyoming (67986).
- PELLOUX, Prof. ALBERTO, Genoa, Italy: 15 minerals (67235, exchange).
- PENNEY, W. L., and ROBERT L. BRAINERD, Kellogg, Idaho: Examples of lead ore (cerussite) from Lookout Mountain, Pine Creek district, Idaho (68211).
- PENNSYLVANIA DISTRICT KI-WANIS CLUB, Philadelphia, Pa. (through Lawrence V. Boyd): 2 copies of the Kiwanis Service Medal, Pennsylvania district (67869).
- PENNSYLVANIA, STATE OF, ADJUTANT GENERAL'S OFFICE, Harrisburg, Pa.: Bronze medal and service bar, in duplicate, of the type awarded by the State of Pennsylvania to members of the National Guard of that State for service during the World War (67631).
- PENNSYLVANIA, STATE OF, DEPARTMENT OF AGRICULTURE, Bureau of Plant Industry, J. G. Saunders, director: 13 specimens of beetle larvae (68097) Exchange.
- PENNSYLVANIA, UNIVERSITY OF, Philadelphia, Pa.: 78 specimens of plants from Formosa (66942, exchange).
- PENROD WALNUT & VENEER CO., Kansas, Mo. (through American Walnut Manufacturers' Association, Chicago, Ill.): 6 specimens showing the manufacture of burl veneer from American walnut (67934).
- PEREZ, GILBERT S., Lucena, Tayabas, P. I.: 6 specimens, 3 species, of Philippine landshells, including the type of a new species (67832); 7 specimens, 2 species, of landshells from Panay, P. I. (68367).
- PERKINS, JOHN U., Smithsonian Institution: Wynnes infallible exposure meter for photographic work (67279).
- PERSHING, Gen. JOHN J., U. S. Army, War Department, Washington, D. C.: American flags presented to General Pershing, on various occasions in France and in the United States, as Commander in Chief of the American Expeditionary Forces during the World War (14 specimens) (68393, loan).
- PERUVIAN EXPEDITION OF 1914-15 UNDER THE AUSPICES OF YALE UNIVERSITY AND THE NATIONAL GEOGRAPHIC SOCIETY: 676 bird skins from Peru (67070).

- PETERSEN, H. P., Washington, D. C.: 70 cut pieces of precious coral (67314).
- PETROCCHI, Dr. JUANA, Instituto Bacteriologico, Buenos Aires, Argentina: Mosquito (67425, exchange): 5 mosquitoes (67888).
- PEUDON, Miss R. M., Washington, D. C.: Fragment of a shell celt from Pablo Beach, Fla. (68195).
- PHARO, J. E. (See under Teredocidae Corporation.)
- PHILIP, Hon. HOFFMAN, care, State Department, Washington, D. C.: Ethnological specimens from Abyssinia (68410, loan).
- PHILIPPINE ISLANDS, GOVERNMENT OF:  
*Bureau of Science*, Manila, P. I.: 3908 plants from the Philippine Islands, Borneo, and eastern Siberia (67229, 67940, exchange); 62 mosses from the Philippine Islands (68044, exchange); 64 specimens of parasitic Hymenoptera, part of them being types of species described by S. A. Rohwer (67423).  
*University of the Philippines*, Manila, P. I. (through Prof. A. L. Day): Shrimp (67939).  
*College of Agriculture*, Department of Entomology, Los Banos, P. I. (through Prof. H. E. Woodworth): 72 specimens of mosquitoes (67454); also 7 specimens, 7 species, of marine mollusks from the Philippines (68468).
- PHILLIPS, Brig. Gen. FRED. H., JR. (See under National Rifle Association of America.)
- PHOTOGRAVURE & COLOR CO., New York City (through Karl A. Arvidson): Photograph of Eadward Muybridge, after the painting by Elsa Koenig Nitzschs (66944).
- PICHON, Miss EUGENIE C., Upperville, Va.: Pair of infant moccasins, Indian, a beaded pouch, from Nome, Alaska (66966).
- PICKETT, R. C., Edgewater, Colo.: 5 plants (66794); 10 plants (67188).
- PICKREL WALNUT CO., St. Louis, Mo.: Frame containing 8 panels showing various figures of American walnut (66933).
- PIETZ, ADAM, Germantown, Philadelphia, Pa.: Commemorative and decorative medals, plaques, and medallions made by the donor (27 specimens) (68326).
- PIFER, Mrs. IDA LITTLE, Washington, D. C.: Wreath of flowers made from human hair by Mrs. Jemima Cattell Little, the grandmother of the donor, which was begun at Newton, Iowa, about 1865 (68428).
- PILSBRY, Dr. H. A., Academy of Natural Sciences, Philadelphia, Pa.: 25 specimens, 8 species, of freshwater shells from Lake Champlain, N. Y. (67138); 5 specimens, 1 species, of land shells from Tucson Range, Ariz. (68474).  
 (See also under Academy of Natural Sciences.)
- PING, C. (See under National Southeastern University.)
- PIPER, Prof. C. V., Bureau of Plant Industry, U. S. Department of Agriculture, Washington, D. C.: Plant from Canada (67100).
- PITTIER, H., Caracas, Venezuela: 710 plants from Venezuela (66927, 67447, 67693, 67901, 67929, 68162, 68264).  
 (See also under Dr. Alfredo Jahn.)
- POEHL, Dr. G., St. Louis, Mo.: A tapeworm (67909).
- POLAK, RICHLARD, Sunn Matt, Gstaad, Switzerland: 6 platinum prints (67997).
- POLLOCK, G. P., Luray, Va.: Whistling swan (67843).
- POLYGRAPHIC CO., THE, Laupen-Berne, Switzerland: Description and samples of the "Manul process" of making reprints of printed matter and a film negative (5 specimens) (67426); example of "Manul" reprinting process, comprising 1 original, a Manul film negative from it,

- POLYGRAPHIC CO., THE—Contd.  
a transfer on zinc plate, and 3 proofs from the zinc plate (67678).
- POMEROY, C. S., Riverside, Calif.: Plant from California (67656).
- POMONA COLLEGE, Department of Botany, Claremont, Calif.: (through Dr. Philip A. Munz) 724 plants and 6 ferns (67463, 68275); (through Dr. W. A. Hilton) 50 specimens of Cynipidae representing 20 named species, of which 14 are represented by paratypes (68251) Exchange.
- PONTON, G. & G., Glasgow, Scotland: 7 "pontoprints," examples of rotary intaglio in colors (67858).
- POPE, Miss MAXY, Department of Biology, University of Colorado, Boulder, Colo.: Bee (68356).
- PORTUGUESE GOVERNMENT (through Charles Moore, chairman, U. S. Commission of Fine Arts, Washington, D. C.): Silver campaign medal, bronze victory medal, and bronze war cross of the types awarded by the Portuguese Government in recognition of military and naval services during the World War (67457).
- POST, GEORGE, Oakland, Calif.: Stone pestle found near Sebastopol, Calif. (68227).
- POST OFFICE DEPARTMENT: 16 sets of specimen stamps, etc., in triplicate (5,074 specimens), received from the International Bureau of the Universal Postal Union, Berne, Switzerland (66847, 66915, 66974, 66995, 67117, 67244, 67392, 67469, 67641, 67739, 67868, 68001, 68084, 68169, 68358, 68527).
- POWER, Dr. FREDERICK B., Bureau of Chemistry, U. S. Department of Agriculture, Washington, D. C.: 9 specimens of medicinal chemicals and a copy of the text and plates of "Sammlung Officiner Pflanzen" by Dr. F. L. Nees von Esenbeck (67560).
- (See also under Agriculture, Department of, Bureau of Chemistry.)
- POWERS, Miss EMMA B., Smithsonian Institution: Miniature cotton bale showing the method of handling cotton at the Texas ginneries (67716).
- POWERS - WEIGHTMAN - ROSEN-GARTEN CO., Philadelphia, Pa.: 13 specimens of medicinal alkaloids and alkaloidal salts (67989).
- PRESBREY-LELAND CO. (INC.), New York City: Four 4-inch cubes of Dummerston granite (68342).
- PROVINCIAL MUSEUM, Victoria, B. C. (through E. H. Blackmore): 6 moths (67590).
- PURDY, CARL, Ukiah, Calif.: Fern from California (67613).
- QUINCY, GEORGE G., Boston, Mass., and CHARLES F., New York City: American flag flown on the U. S. brig *Enterprise* during the engagement between that vessel and the British brig *Boxer*, September 5, 1813 (68014).
- RATHBUN, Dr. MARY J., U. S. National Museum, Washington, D. C.: 4 plants from Ireland (67790).
- RECORDER PRINTING & PUBLISHING CO., San Francisco, Calif.: 10 specimens of rotary intaglio printing in monotone (67133).
- REED, Lieut. Commander RICHARD C., U. S. Navy, Naval Supply Corps, Tutuila, Samoa: 25 bird skins and 22 birds in formalin from Samoa (66775).
- REESIDE, J. B., JR. (See under Instituto de la Salle, Bogota, Colombia, and Bruce Wade.)
- REHDER, HARALD A., Jamaica Plain, Mass.: Mollusk from New Mexico (68390).
- REICHE, Dr. K., National University of Mexico, Mexico, D. F., Mexico: 19 plants; package of seeds of a plant (67324, 67660, 68314).
- REID, EARL D., U. S. National Museum, Washington, D. C.: 29 pairs of earstones (otoliths) dissected from the heads of fishes and 3 fishes from the Washington market (67163, 67766); 4 fishes from the Potomac River at Chain Bridge (67164).
- (See also under Barton A. Bean.)

- REINHARD, EDWARD G., S. J., Woodstock College, Woodstock, Md.: Blister beetle (67784); 7 specimens of larvae and cocoons of the solitary wasp (68072).
- REINHARD, H. J., Texas Agricultural Experiment Station, College Station, Tex.: 4 paratypes of a parasitic fly (68073, exchange); 6 parasitic flies (types of 5 species) (68219).
- REKO, Dr. BLAS P., Oaxaca de Juarez, Mexico: 37 plants (66810, 68177); 2 plants and a specimen of cactus from Mexico (67543, 67672).
- RENSSELAER POLYTECHNIC INSTITUTE, Troy, N. Y. (through Palmer C. Ricketts, president): Engraved certificate of the type awarded by the Rensselaer Polytechnic Institute to graduates and students of that institution who served in the Army or Navy of the United States during the World War (67807).
- REY, GUIDO, Turin, Italy: 21 photographs and 2 photogravures (67309).
- REYNE, A., Agricultural Experiment Station, Department van den Landbouw, Paramaribo, Dutch Guiana: Piece of coral from the coast of Surinam (68467).
- REYNOLDS, GEORGE E., Washington, D. C.: 6 specimens of copper ores from the mines of the Kennecott Copper Corporation (66828).
- RHODE ISLAND, STATE OF, ADJUTANT GENERAL'S OFFICE, Providence, R. I.: Bronze medal, in duplicate, of the type issued by the State of Rhode Island to members of the State Guard for service during the World War (67055).
- RICE, JAMES HENRY, JR., Wiggins, S. C.: 24 specimens, 2 species, of marine mollusks from a bluff on the Chee-Ha River, Wiggins, S. C. (68000).
- RICHARD, Prof. L. M., Venice, Calif.: A small lot of fossils containing 2 species of mollusks and a fragment of echinoderm from Columbus Landing, Sabine River, La. (66962).
- RICHARD, MARION, McGill, Nev.: Moth (66866).
- RICHARDSON, C. T., Curlew, Nebr.: Specimen of Pinon jay from Nebraska (67293).
- RICHMOND, Dr. C. W. (See under estate of E. A. Mearns.)
- RICKETTS, PALMER C. (See under Rensselaer Polytechnic Institute.)
- RIDGE, HIRAM L., Nashville, Tenn.: Skeleton of an adult Indian found at Larkins Springs, near Nashville, Tenn. (67568).
- RIKSMUSEETS BOTANISKA AFDELNING, Stockholm, Sweden (through Dr. Carl Lindman, director): Fern from Brazil (67767, exchange).
- RILEY, J. H., U. S. National Museum, Washington, D. C.: 6 bird skins from the United States (68064).
- ROBERTSON, Mrs. GERTRUDE, Portland, Ore.: 25 specimens, 6 species, of land mollusks from Portland, Ore. (68423).
- ROCHESTER ACADEMY OF SCIENCE, Rochester, N. Y.: (through M. S. Baxter) 33 plants from Porto Rico (67557); (through Miss Florence Beckwith, president, botanical section) 374 plants from Florida and 160 from Tennessee (67988, 68082) Exchange.
- ROEBLING, Col. WASHINGTON A., Trenton, N. J.: A 48-gram slice of the Chinautla, Guatemala, meteorite (67224, exchange); 4 grams of the Rochester, Fulton County, Indiana, meteoric stone, and fragments of daubreelite and osbornite (67374); specimen of rhodonite and yellow axinite from Franklin Furnace, N. J. (68167).
- ROGERS, JOSEPH M., Washington, D. C. (through Mrs. E. C. Barnard): Collection of stone implements found by the donor near Lancaster, Garrard County, Ky. (67727).
- ROIG, Dr. MARIO SANCHEZ, Havana, Cuba: (through Miss Pearl L. Boone) 2 specimens of isopods from the Isle of Pines (67427); (through Dr. T. Wayland Vaughan) 4 speci-

- ROIG, DR. MARIO SANCHEZ—Contd.  
mens of Tertiary corals from near Havana (68089); about 50 specimens, 38 species, of Pleistocene fossils (internal casts) collected at Mazorra, Vento, Havana, Cuba (68483).
- ROLFF, Lieut. WILLIAM A., U. S. M. C. (retired), Washington, D. C.: United States Marine officer's saber, scabbard, and saber knot (66960, loan).
- ROMAN, DR. A., Naturhistoriska Riksmuseets, Entomologiska Afdelning, Stockholm, Sweden: 164 specimens of parasitic Hymenoptera, representing 109 species, of which 10 are represented by paratypes (68265, exchange).
- ROOSEVELT, Mrs. THEODORE, Oyster Bay, N. Y. (through Mrs. Julian-James and Mrs. R. G. Hoes, Washington, D. C.): A doll and accessories (67050, loan).
- RORER, Mrs. JAMES BIRCH, Guayaquil, Ecuador: Large collection of tropical butterflies, many of them new to the Museum collections (68353).
- ROSS, Mrs. RUTH C., Winkelman, Ariz.: 10 plants (68322).
- ROST, E. C., Alhambra, Calif.: 25 plants (66792).
- ROWE, L. S. (See under Tomas a Le Breton.)
- ROWLEE, Prof. W. W., Cornell University, Ithaca, N. Y.: 57 plants from Ecuador (67142, 67629).
- ROYAL ACADEMY OF BELGIUM, Brussels, Belgium: Bronze plaque commemorating the one hundred and fiftieth anniversary of the Royal Academy of Belgium, 1922 (68402).
- ROYAL PROVINCIAL MUSEUM, Toronto, Canada (through Mr. N. K. Bigelow): 10 flies (67696, exchange).
- RUHMANN, MAX, Vernon, British Columbia (through Mr. John Tophill): 6 flies (66928).
- RUNYON, ROBERT, Brownsville, Tex.: 21 plants (66888, 66943); 9 plants from Texas (67431, 67677, 67907);
- RUNYON, ROBERT, Brownsville—Con.  
35 cacti (66994, 67564, 68018); land mollusk found on a plant (67959); 10 plants from Mexico (68104).
- RUSH, FRANK, forest supervisor, Cache, Okla.: 4 plants from Oklahoma (67486).
- RUSSELL, W. S., Los Angeles, Calif. (through Hoyt S. Gale): 3 specimens of colemanite from W. S. Russell property, Furnace Creek, Inyo County, Calif. (67474).
- RUTH, Prof. ALBERT, Polytechnic, Tex.: 37 plants (67298, 67452).
- ST. ANSELM'S COLLEGE, Manchester, N. H.: (through Rev. Father Damian Smith): 7 moths (68286).
- SALVADOR, GOVERNMENT OF, DIRECCION GENERAL DE AGRICULTURA: 6 plants and 3 photographs; also 1,500 plants from El Salvador (66788, 68458).
- SANCHEZ, DR. MARIO, Havana, Cuba: 8 specimens, 4 species, of land shells from Cuba (68113).
- SAN DIEGO SOCIETY OF NATURAL HISTORY, Natural History Museum, San Diego, Calif. (through Ralph W. Sumner, curator of plants): 17 ferns from New Zealand (67005).
- SARASOTA COUNTY CHAMBER OF COMMERCE, Sarasota, Fla. (through Department of Commerce, U. S. Bureau of Fisheries, Washington, D. C.): A very large spiny lobster, *Panulirus argus*, taken by Dr. F. J. McGuire, of Binghamton, N. Y., and Capt. E. H. Sayre, of Watermill, Long Island, N. Y., and Sarasota, in about 8 fathoms of water on the grouper banks of the Gulf of Mexico, about 8 miles off the Sarasota County coast (67937).
- SARGENT, C. S. (See under Harvard University, Arnold Arboretum.)
- SAUNDERS, C. F., Pasadena, Calif.: 2 plants from California (67207).
- SAUNDERS, J. G. (See under Pennsylvania, State of, Dept. of Agriculture.)

- SAVAGE & CO., JOHN A., Crosby, Minn.: Collection of fossil bison bones from the Sagamore Mine, Riverton, Minn. (67273); fragments of antlers of caribou (67823).
- SAVAGE, M. F., New York City: Box of Bryant & Mays patent special safety match, England, 1874 (67376); half-dozen silver teaspoons owned by Martha Washington (67601).
- SCALCO, SALVATORE, Washington, D. C.: Centipede (67636).
- SCHAEFFER, WILLIAM, Kellogg, Idaho: Specimen of lead-zinc ore (67076).
- SCHALLER, Dr. W. T., U. S. Geological Survey, Washington, D. C.: Specimen of pectolite and thaumasite from Paterson, N. J. (66910).  
(See also under C. E. Noble.)
- SCHAUS, WILLIAM, U. S. National Museum: The Gorham collection of Cassididae (tortoise beetles), consisting of 2,000 specimens, about 575 species (68499).
- SCHENCK, A. C., Wauchula, Fla.: Bannerstone found in a mound 12 miles west of Wauchula, Fla., in March, 1921, by Mr. Schenck, H. M. Alexander, and O. E. Offett, all of Wauchula (67257).
- SCHLESCH, HANS, Seydisfjord, Iceland (through Dr. W. H. Dall): 76 specimens, 7 species, of Icelandic shells, 1 species from Labrador (66780); 19 species of Pliocene fossils from Tjörnes, North Iceland (67534, exchange).
- SCHMID, EDWARD S., Washington, D. C.: Shama (66841); 63 birds (67214, 67234, 67283, 67371, 67566, 67604, 67719, 67914, 68060, 68260, 68365, 68413); guinea pig (67479); short-eared owl (67551); Dominican cardinal from South America (67643); myna (bird) from India (67662); monkey (alcoholic specimen) (68009); 12 bird skins from the Philippine Islands (68026, exchange); bullfinch (68274); red-tailed hawk (68334).  
(See also under P. C. Harman.)
- SCHULZ, Miss ELLEN D., San Antonio, Tex.: 33 plants (66785, 67197); 160 plants from Texas (66876, 66937, 67027, 67289, 67553).
- SCIDMORE, Miss E. R., Washington, D. C.: Large yellow Chinese bowl with stand (67299) Loan.
- SCIENCE MUSEUM, London, England. (See under British Government.)
- SCOTT, J. G., University of Maryland, College Park, Md.: Lamprey eel from Paint Creek, Md. (67764).
- SEBASTIEN, E., St. Thomas, Virgin Islands of the United States: Beetle common in South America (68382).
- SECHRIST, E. L., Chevy Chase, Md.: Lamb-type knitting machine with parallel lines of knitting hooks (67260).
- SÉGUY, E., Museum d'Histoire Naturelle, Paris, France: 5 specimens of mosquitoes (68053).
- SELLARDS, Dr. E. H., University of Texas, Austin, Tex.: Several specimens of Pleistocene mollusks in the matrix (67119).  
(See also under Texas, University of.)
- SENCKENBERGISCHE NATURFORSCHENDE GESELLSCHAFT, Frankfort-on-the-Main, Germany (through Dr. F. Haas): 12 specimens, 12 species, of Philippine Island land shells, including 9 cotypes of species and subspecies (67867); 44 specimens of invertebrate fossils from Spain (68055). Exchange.
- SETCHELL, Prof. W. A. (See under California, University of.)
- SEYMOUR, Miss HELEN W., Washington, D. C.: 307 miniature carvings attached to 46 rings as "waist-hangers" (Koshisi sagi), and a Japanese silk bag (67876, loan).
- SHAKESPEARE CO., Kalamazoo, Mich. (through Department of Commerce, Bureau of Foreign and Domestic Commerce, Washington, D. C.): Sample of "Tonkin cane," now being imported from China and used exclusively in the manufacture of bamboo fishing rods (68425).



- SHANNON, R. C., U. S. National Museum: 20 North American flies (67899, exchange).
- SHAW, Lt. Col. GEORGE C., Washington, D. C.: Collection of firearms, cutting weapons, battle flags, shields, gong, photo-enlargements, and sea shells from the Philippine Islands (67947).
- SHELTON, W. ARTHUR, Washington, D. C.: Barred owl (67165).
- SHERRILL, Lieut. Col. C. O., U. S. Army. (See under War Department, Public Buildings and Grounds.)
- SHOEMAKER, CLARENCE R., U. S. National Museum, Washington, D. C.: Plant from Maryland (66784).
- SHOEMAKER, FRANK H., Lincoln, Nebr.: About 1,500 specimens of fossil mollusks, representing 1 species, from about 100 feet below the high beach line of the ancient "Blake Sea," near Salton, Calif. (67459).
- SHOOK, Mrs. ANNA NOTT, New York City: Homekraft loom invented by the donor and 13 hand-woven articles produced in the Homekraft Studio, New York City (68036).
- SHREVE, Dr. FORREST, Tucson, Ariz.: 2 specimens of cacti (68153).
- SHROPSHIRE, Dr. JAMES B., Ancon, Canal Zone: 3,456 mosquitoes (67478, 67548, 67562, 67627, 67701, 67704, 67726, 67849, 67873, 67938, 67973, 68081).
- SHUFELDT, Dr. R. W., U. S. Army (retired), Washington, D. C.: Specimen of Asiatic mantis collected in the District of Columbia (67755).
- SHUFELDT, Dr. R. W., U. S. Army (retired), and F. M. WOODRUFF, Washington, D. C.: Snake in alcohol from northern Mexico (67991).
- SIMONS, Mrs. CARRIE L., San Diego, Calif.: About 200 specimens, 3 species, of marine mollusks from North Coronado Island, Calif., including the type of a new genus and species (68493).
- SINNOTT, ESTATE OF MARY ELIZABETH (through Mrs. J. Ryan Devereux, Chevy Chase, Md.): Col-  
 SINNOTT, ESTATE OF MARY ELIZABETH—Continued.  
 lection of dolls dressed to represent various costumes and notable personages of the United States and foreign countries (281 specimens); also 7 specimens of laces, 2 specimens of pottery, and 18 dolls (67366, 68233).
- SKINNER, Dr. HENRY. (See under Academy of Natural Sciences.)
- SMALL, Dr. J. K., Miami, Fla.: Fern from Florida (68232).
- SMITH & CO., BRADNER, Chicago, Ill.: Example of type and half-tone printing on Lakeside bond paper (67116).
- SMITH, Dr. CARROLL DUNHAM, New York City (through Dr. W. A. Dewey, Ann Arbor, Mich.): Specimens and documents relating to the history of homeopathy in the United States (67509).
- SMITH, C. J., Chevy Chase, D. C.: 2 paintings of Mongolian shamans and 2 carved-wood ecclesiastical figures (68111, exchange).
- SMITH, Rev. Father DAMIAN, St. Anselm's College, Manchester, N. H.: 67 plants (67323).
- SMITH, Dr. EDGAR F. (See under American Chemical Society.)
- SMITH, GEORGE W., West Palm Beach, Fla.: 5 photographs of the skull of a "false killer" whale from Hillsboro Lighthouse, near Deerfield, Fla. (68226).
- SMITH & CO., GEORGE W. (Inc.), Philadelphia, Pa.: 6 specimens showing the manufacture of Woodisk wheels for motor vehicles (68506).
- SMITH, HARLAN I. (See under Canadian Government, Victoria Memorial Museum.)
- SMITH, Mrs. H. H., Alabama Museum of Natural History, Tuscaloosa, Ala.: 30 lots of fresh-water mollusks from Alabama (67436, exchange).
- SMITH, Dr. HUGH M., Washington, D. C.: 40 plants from Alaska (67171).
- (See also under J. N. Braun.)

SMITH, Miss KATE, Chatsworth, Bolton Road, Chiswick, London, England: Mounted pictorial bromide print, entitled "Arcadian Angler" (67202).

SMITH, L. W., Midnight, Miss.: 2 skins of squirrels from swamp of Little Sunflower River, Miss. (67770).

SMITH, Miss NARCISSA OWEN, U. S. National Museum: Italian fan of 1790 (ivory, hand-painted on goose skin), and a Spanish fan of 1760 (pearl, carved, and inlaid sticks) (67381).

SMITH, NEWELL & BISHOP, Tampico, Mexico (through Dr. L. W. Stephenson): Collection of Cretaceous radiolites and crinoids from Mexico (66789).

SMITH, W. A., Crown Point, N. Mex.: Archeological objects from Chaco Canyon, N. Mex., and an iron arrow point from Colorado (67476).

SMITHSONIAN INSTITUTION:

2 bronze plaques commemorating in 1920 the fiftieth anniversary of the founding of the Wisconsin Academy of Sciences, Arts and Letters, 1870 (67231); water-color portrait of Annie Alexander Henry, mother of Joseph Henry; plaster medallion portrait of Joseph Henry; engraved portrait of John Robison and two pairs of mounted antlers (67395); collection of vertebrate fossils made by the late William Palmer (67842); decorations and gold, silver, and bronze medals awarded to David Edward Hughes in recognition of his scientific achievements, and a gold watch owned by him, a legacy to the Institution from his daughter, Miss Anna Chadbourne Hughes, of Cambridge, Mass. (19 specimens in all) (67924); bronze bust of Hudson Maxim, by Moses W. Dykaar, presented to the Institution by Dr. Maxim (67983) Deposit.

SMITHSONIAN INSTITUTION—Con.

*Smithsonian African expedition, under the direction of Edmund Heller, in conjunction with the Universal Film Manufacturing Co.:* 24 mammals, 235 birds, and 5 birds' nests, 1 lizard, 2 lots of insects, 8 packages of mollusks, a small collection of marine invertebrates, and ethnological specimens from Africa (66929); 90 ferns collected in Africa by H. L. Shantz (66998).

*Bureau of American Ethnology:* Collection of Alaskan ethnological and geological specimens made by the late Rev. Sheldon Jackson and purchased by the bureau from his daughter, Miss Leslie Jackson (66880); shell and pottery specimens from Ten Thousand Islands, Fla., collected during the spring of 1921 by William Dinwiddie, Metuchen, N. J. (67105); 4 stone objects and 2 pottery fragments from "Bear" and "Lewis" mounds, near Portsmouth, Ky., collected by Gerard Fowke during the spring of 1921 (67112); 4 pieces of pottery and 8 pieces of flint, collected by Prof. J. E. Pearce, of Austin, Tex., in eastern Texas during the summer of 1919 (67225); collection of shell objects presented to the bureau by Charles T. Earle, of Palma Sola, Fla., found near Shaws Point, Fla. (67258); collection of archeological objects secured by Dr. J. Walter Fewkes from the Mesa Verde National Park, Colo., in the spring of 1920 (67274); chunkey stone from Rowena, Ky. (67398); archeological objects collected near Austin and at "Burnt Rock" mounds, Texas, by Prof. J. E. Pearce and Dr. J. Walter Fewkes (67451); collection of skeletal material secured by William E. Myer in the vicinity

## SMITHSONIAN INSTITUTION—Con.

*Bureau of Amer. Ethnology*—Con.

of the junction of Split Rock River and Big Sioux River, S. Dak. (67572); archeological material collected in 1920 by Mr. Myer for the bureau in Williamson and Davidson Counties, Tenn. (67730); collection of archeological objects from Rio Grande Valley, N. Mex., turned over to the bureau by Dr. Charles D. Walcott (68254); fragments of pottery from an Indian burial on Catawba River, N. C., sent to the bureau by J. Albert Holmes, Construction, Burke County, N. C. (68255); collection of Indian implements found on the terraces of Upatoi Creek and the Chattahoochee River, Muscogee County, Ga., sent to the bureau by A. T. Sweet, Columbus, Ga. (68256).

*National Museum, collected by*

*members of the staff:* Aldrich, J. M.: Collection of insects from Alaska, approximately 10,000 specimens (67254). Bartsch, Paul: About 20,000 cerions and other mollusks from the Bahamas and Florida (66808); collection of echinoderms, crustaceans, reptiles, batrachians, and birds from the Bahamas, and sternum and part of skull from Dry Tortugas, Fla. (66848). Bassler, R. S.: 2,000 specimens of study and exhibition Paleozoic fossils from central Tennessee (67014); about 3,000 specimens (exclusive of duplicates) of Middle and Upper Devonian fossils from western New York and Pennsylvania (67292). Boss, Norman H.: 2 partial skeletons and some miscellaneous bones of fossil cetaceans from Chesapeake Beach, Md. (67353). Foshag, W. F.: Collections from California and

## SMITHSONIAN INSTITUTION—Con.

*National Museum*—Continued.

Nevada of mineralogical material, aggregating approximately 200 specimens (68480). Gidley, J. W.: 2 skulls of the fossil rhinoceros from the "bone quarry," near Agate, Nebr. (66818). Merrill, G. P.: Collection of rocks from Maine (67155). Poole, A. J.: 2 skins, 2 skeletons, and 4 skulls of Virginia deer from New Jersey (67731). Standley, Paul C.: 7,000 plants collected in Honduras, Salvador, and Guatemala; also a collection of shells, 2 mammal skulls from Salvador and Guatemala, and a specimen of lignite(?) from Salvador (68465). Walcott, Charles D.: Skin and skull of a deer, skin and skull of a mountain sheep, and skull of a mountain goat, all from Alberta, Canada (67532). Watkins, W. M. N.: Specimens of curly maple, black walnut, and dogwood (68508).

*National Museum, obtained by*

*purchase:* 2 photographs of the Bad Lands of South Dakota (67875); bronze copies of the medal issued by the American Numismatic Society commemorating the visit of Marshal Foch to the United States in 1921 (67920); 2 bronze copies of the medal issued by the Century Association and the American Numismatic Society in commemoration of the career of Joseph Hodges Choate (1832-1917) (68197); 75 photographs of snow crystals (67961); 38 mud turtles and musk turtles (67016, 67203); 11,250 plants, largely from tropical America (67321, 68132); antique copper lantern of Italian make of the seventeenth century (68381); book, entitled "The

## SMITHSONIAN INSTITUTION—Con.

*National Museum—Continued.*

Well at the World's End," by William Morris (68438); 280 grams of meteoric (pallasite) from Cold Bay, Alaska (67540); carved stone head (68396); Papago, Maricopa, and Chipewa ethnologia (67896); 5,141 beetles (67769); 254 plants from British East Africa (66843, 68374); examples of nesquehonite, demantoid, and other minerals from Italy (67946); copy of reproduction of the Perez Maya codex (1 photographic copy, 2 transliterations in color) 3 tables of glyphs, and 4 blanks for recording glyphs (68293); 261 British Guiana plants (68164); 231 Paraguay plants (68130); 25 specimens of North American mosses (*Musci Acrocarpi*, Fascicle 18, Nos. 426-450) (67979); 25 plants (*Musci Acrocarpi*) (68395); 6 musk turtles from New Orleans (67239); 300 plants from California (67658, 68034); the Gorham collection of *Cureulionidae* (weevils), consisting of 6,500 specimens, about 3,600 species (68498); 46 samples of standard cotton, silk, wool, and linen fabrics (68426); prehistoric engraved monolithic stone ax found near Ball Ground, Ga. (67897); ribless turtle from East Africa (67827); 182 plants from Ecuador (68030); about 1,000 plants from French Guiana, collected by W. E. Broadway (67492); 6 molar teeth and samples of skin, muscle, contents of stomach, fat, blood, woolly hair, and hair from the tail of the Siberian mammoth, with sample of loess (67892); 32 specimens of Venezuelan plants, collected by A. Jahn (67622); 159 Venezuelan plants (67723); photograph of Albrecht Durer's first woodcut, St.

## SMITHSONIAN INSTITUTION—Con.

*National Museum—Continued.*

Jerome removing a thorn from the lion's foot (67826); collection of beetle larvae and a collection of Baltic amber with inclosed insects (67978, 68309); 127 specimens of South African plants (68394); 6 specimens of Javanese batiks and 1 tjanting of native make (67243); 7 specimens of lining materials used in tailoring men's clothing (68448); collection of beetles (*Platypodidae*) (67442); 1,000 plus microscopic slides of *Albatross* sponges with critical notes; also Dr. Lendenfeld's personal slide collection, including 71 slides of European sponges, in part type material (68491); 3 examples of meteorites, Bremerverde, Nerft, and Toubil (67217); 10 specimens of beryl (aquamarine) from Brazil (68217); a series of 10 specimens showing the effect of radium rays on the color of minerals (66938); collection of aculeate Hymenoptera (66913).

*National Museum, made in the Anthropological Laboratory:* Model of the *Mayflower* (66906); plaster casts of 3 banner stones (67301); 3 plaster casts of an engraved limestone slab found in a gravel pit in North Austin, Tex., originals the property of Prof. J. E. Pearce, University of Texas, Austin, Tex. (67880); 3 casts each of banner stones and handle, the originals of which are the property of Mrs. Mary P. Waller, Richmond, Va. (68040); 3 casts of a bird stone, the original of which is the property of Earl Heady, Clarion, Mich. (68041); 3 plaster casts of a slate banner stone found on the Elam Kinsey farm, Graceton, Harford County, Md., original the property of Bennet C. Wheeler,

## SMITHSONIAN INSTITUTION—Con.

*National Museum*—Continued.

Pylesville, Harford County, Md. (68294).

*National Museum, made in the Mechanical Technology Laboratory*: Model of ancient Roman catapult (68425).

*National Museum, made in the Mineral Technology Laboratory*: 8 transparencies of various features of the Solvay process method of manufacture of sodium compounds (68033).

*National Museum, made in the Photographic Laboratory*: 3 photographs from engravings (2 of a type foundry and 1 of a paper mill); 3 photographs from photogravures (2 of portraits of Niepce, inventor of photoengraving, and 1 of a portrait of Paul Pretsch) (67261); 5 photographs of various subjects related to graphic arts (67514); 4 enlargements from half-tone negative (67591); 12 transparencies of scenes in the natural-gas industry (67762).

*National Zoological Park*: Skull of a mountain goat, skin and skull of a coati, skin and skeleton of a sea cow, skin and skeleton of a pig (66996); skin and skull of a Margay cat, from Rio Para, Brazil (67295); skin and skeleton of a monkey, skin and skull of a beaver (2 specimens) from Wisconsin, and a beaver (alcoholic) from Wisconsin (67247); skin and skeleton of a wild horse (67610); agouti (67756); Tasmanian devil (68095); monkey (alcoholic) (68149); skin and skull of a monkey, skin and skeleton of a monkey, and a monkey (68263); kangaroo, monkey (alcoholic), skin and skull of a squirrel, and skin and skeleton of a monkey (68269); skin and skeleton of a tapir (68271); skin and skeleton of

## SMITHSONIAN INSTITUTION—Con.

*National Zoological Park*—Con.

a monkey from Rio Madeira, Brazil (68320); crested caracara, blue-winged paroquet, duck hawk, short-keeled toucan, dusky parrot, double-crested cormorant, Cape Barren goose, 4 specimens of gouldian finch, coscoroba swan, inca toucan, razor-billed curassow, 2 specimens of lapwing, orange-winged paroquet, golden-crowned paroquet (68335); skin and skull of a monkey from Bolivia (68376); an egg of Earl's weka (68416); body of a trumpeter swan (68434); skeleton of a mountain goat (68446); tree porcupine (68453).

SNEED, J. R., Fort Worth, Tex.: 2 cacti from Texas (67829).

SNOWDEN, Miss LOUISE HORTENSE, Philadelphia, Pa.: Bird of paradise worn by Mrs. Robert Patterson on her turban at the ball given in Philadelphia in 1824 in honor of General Lafayette (68215).

SNYDER, JOHN Y., Shreveport, La.: Piece of coral from Chaland Pass, Plaquemines Parish, La. (67814).

SOHRWEIDE, ANTON, Watertown, Wis.: Copper and stone projectile points, fragments of copper and Jasper, and ear stones (otoliths) of the drumfish (68246).

SOLIS, OCTAVIO, Mexico City, Mexico: 8 plants from Mexico (67802).

SOMES, M. P., Clinton, Miss.: 2 fishes collected in Mississippi (68218); 4 specimens, 4 species, of marine mollusks from Yazoo River, Miss. (68484).

SONS OF THE AMERICAN REVOLUTION, THE NATIONAL SOCIETY OF THE (through William S. Parks, registrar general): Bronze badges of the type awarded by the National Society of the Sons of the American Revolution to members of the society in recognition of patriotic services during the war with

- SONS OF THE AMERICAN REVOLUTION, THE NATIONAL SOCIETY OF THE—Continued.  
Spain and the World War (2 specimens) (67264).
- SOPER, DR. GEORGE A., New York City: 4 lots of shipworms from the vicinity of New York (68501).
- SOUTH AFRICAN MUSEUM, Cape Town, South Africa (through Dr. H. K. Barnard): 3 specimens of isopod crustaceans (67033, exchange).
- SOUTH DAKOTA, UNIVERSITY OF, Vermilion, S. Dak. (through Prof. W. H. Over): 141 plants from South Dakota (67967).
- SOUTHERN BIOLOGICAL SUPPLY CO. (INC.), New Orleans, La.: 23 turtles collected in Louisiana (67615).
- SOWERBY, ARTHUR DEC., Shanghai, China: Skull of a field mouse from France (68280).
- SPAULDING, DR. PERLEY, Bureau of Plant Industry, U. S. Department of Agriculture, Washington, D. C.: About 400 plants, chiefly from New England (67800).
- SPERRY, MRS. EDITH MARCY, Boulder, Colo.: Maori robes, skirts, and belts, and 2 Filipino mats (67467).
- SPIER, GEORGE W., Chevy Chase, Md.: Collection of 21 ladies' and gentlemen's gold watches of the period between 1860 and 1900; 2 silver watches of the early nineteenth century, and 4 watch movements, collected for the Museum during the past 2 years (68114).
- SPRINGER, DR. FRANK, East Las Vegas, N. Mex.: A nugget of placer gold weighing  $4\frac{1}{2}$  ounces and 7 small nuggets weighing four-fifths of an ounce, from the Maxwell Land Grant, Colfax County, N. Mex. (68343).  
(See also under Hon. Holm O. Bursum.)
- STAFFA, GEORGE, Baltimore, Md.: 139 mollusks and a small collection of marine invertebrates from Boca
- STAFFA, GEORGE—Continued.  
Grande, Gasperilla Island, Fla. (66886).
- STANDARD CHEMICAL CO., Naturita, Colo. (through Frank L. Hess): Examples of carnotite replacing wood, a large specimen of carnotite ore, one of vanadium ore, and a specimen of hewettite from Naturita, Colo. (67735).
- STANDARD OIL CO. OF NEW JERSEY, New York City (through Dr. T. W. Stanton): 23 lots, comprising 125 specimens of Lower Cretaceous invertebrates (67974).
- STANDARD TEXTILE PRODUCTS CO., THE, New York City: 7 specimens illustrating the use of oilcloth (67184).
- STANDLEY, PAUL C., U. S. National Museum: 32 plants from Portland, Me. (67110).
- STANDLEY, PAUL C., and ELLSWORTH P. KILLIP, U. S. National Museum: 215 plants from New Jersey, Massachusetts, and New Hampshire (67126).
- STANFORD, HARRY P., Kalispell, Mont.: Specimen of old squaw from Montana (67645).
- STANFORD UNIVERSITY, Stanford University, Calif.: (Through Dr. Isabel McCracken) 42 specimens of Cynipid wasps, representing 16 species, 15 of which are represented by paratypes (67420); (through Mrs. Roxana S. Ferris) 4 plants from Texas (68096). Exchange.
- STANTON, DR. T. W. (See under Harold J. Cook, Standard Oil Co., and D. E. Winchester.)
- STARR, DOUGLAS N., Washington, D. C.: A Bechtler gold dollar and 2 specimens of the Missouri centennial half dollars; 4 United States gold pieces (quarter eagles), 2 issued in 1907 and 2 issued in 1908; 3 United States \$10 gold pieces coined in 1907, as follows: Original design, St. Gaudens design (type 1), and St. Gaudens design (type 2); United

## STARR, DOUGLAS N.—Continued.

States silver dollars and half dollars, coined 1921 (6 specimens); United States commemorative gold and silver coins, issued 1921–1922 (7 specimens) (67015; 67245; 67531; 67698; 68119, loan); coins of Belgium, France, Germany, Poland, and Russia of the types issued during the World War and a French double sou issued in 1767 (67041); coins of Germany, Spain, Great Britain, Japan, and China (18 specimens) (67042); German and Austrian coins of the period of the World War and an English coin of Charles II (37 specimens) (67259); French 1-franc piece issued 1921 (2 specimens); German aluminium 50-pfennig piece, 1921; Russian 3-kopeck piece issued 1914 (68115).

STATE, DEPARTMENT OF: Writing desk used by Thomas Jefferson when drafting the Declaration of Independence in 1776 and note written by him presenting the desk to Joseph Coolidge, jr., in 1825; pair of eyeglasses owned by Washington and presented by him to Lafayette; stem of a calumet smoked by Washington with an Indian chief in 1748; 3 buttons from the French court dress of Benjamin Franklin, and a gold medal studded with diamonds presented by the Sultan of Turkey to the President of the United States on the occasion of the four hundredth anniversary of the discovery of America (67435); allegorical painting by Leopold Sacrez expressing the gratitude of the commune of Meulebeke, Belgium, for the charitable assistance of America during the World War (67987); sword of George Washington, staff of Benjamin Franklin, and sword of Andrew Jackson (68016, transferred by joint resolution of Congress, approved February 28, 1922).

(See also under Dr. Francisco A. Matute.)

STEELE, E. S., Washington, D. C.: 346 plants from West Virginia (66877).

STEJNEGER, Dr. L., U. S. National Museum: Lefauchaux pin-fire, breech-loading, double-barrel shotgun (68237).

STEPHENS, T. C., Morningside College, Sioux City, Iowa: Collection of bird's nest insects, 13 vials (67522).

STEPHENSON, Dr. L. W., U. S. Geological Survey, Washington, D. C.: 2 specimens of rustidids from the State of Tamaulipas, Mexico, described by the donor (67702).

(See also under A. W. Beckley, Mexican Gulf Oil Co., and Smith, Newell & Bishop.)

STERNBERGH, REGIS S., Washington, D. C.: Yucca-leaf sandal found in a limestone cave southeast of El Paso, Tex. (67891).

STEVENS, Prof. F. L., Urbana, Ill.: Plant from Hawaii (67340); (through Mrs. Agnes Chase) 4 plants from Hawaii (67576).

STEVENS, Prof. O. A. (See under North Dakota Agricultural College.)

STEWART, ALBERT N. (See under Nanking, University of.)

STEWART, J. S., Mansfield, Ohio: "Mummy rat" (68236).

STEWART, Rev. R. R., Gordon College, Rawalpindi, India (through Miss Katherine D. Kimball, Bureau of Plant Industry, U. S. Department of Agriculture, Washington, D. C.): 22 ferns and 9 Himalayan plants (66846, 66884); 35 ferns from British India (68085).

STILL, Dr. GEORGE A., Kirksville, Mo. (through Dr. Norman C. Glover, Washington, D. C.): A case of surgical instruments used during the Civil War by Dr. A. T. Still, the founder of osteopathy (67628).

STOCKBERGER, W. W. (See under Agriculture, Department of, Bureau of Plant Industry.)

- STOCKBRIDGE, Mrs. HENRY, JR., Baltimore, Md.: Alaskan, Polynesian, and Japanese ethnological material and textiles (68419).
- STRONG, A. M., Los Angeles, Calif.: 50 mollusks from Catalina Island, Calif. (68443); 52 specimens, 15 species, of marine mollusks from Anaheim Bay, White's Point, and St. Vincent, Calif. (68494).
- STRONG, Mrs. JOSEPHINE D., Washington, D. C.: British uniform and other military equipment owned during the World War by Lieut. William Strong, jr., of the Canadian Expeditionary Forces; also decorations, documents, and miscellaneous relics relating to his military service during that period (36 specimens) (67691).
- STORROW, Miss EMILY G., Pasadena, Calif.: Collection of laces (67438, deposit).
- SUMNER, RALPH W. (See under San Diego Society of Natural History, Natural History Museum.)
- SURR, GORDON, Porterville, Calif.: Specimen of allanite from Lindcove, Tulare County, Calif. (68397).
- SUTHERLAND, Dr. J. P., Boston University School of Medicine, Boston, Mass. (through Dr. W. A. Dewey, Ann Arbor, Mich.): Cyclopaedia of Drug Pathogenesis, in four volumes (67265).
- SWAIN & SON (LTD.), JOHN, London, England: 10 half tones in color; 3 half tones, wavy line screen; 3 half tones, ruled screen; 6 rotogravures, and "Swain's Quarterly," spring, 1921, which includes specimens of various processes (67303).
- SWALES, B. H., U. S. National Museum: 4 bird skins from tropical Asia and Africa (66845); 89 bird skins, 1 nest, and 2 eggs from Venezuela (67213); 4 skins of Cory's shearwater in breeding plumage (67233); 25 bird skins from various localities, consisting of species chiefly new to the Museum (67391); 23 bird skins from Africa and Brit-
- SWALES, B. H.—Continued.  
ish Burma (67789); 4 bird skins from Europe and Asia (67811); 15 bird skins (67906); 72 birds from various localities, representing for the most part species new to the Museum collections (67915); 5 bird skins from Santo Domingo and the Falkland Islands, including 2 forms new to the Museum (68027); 58 bird skins, chiefly from South Africa (66822).
- SWEZEY, O. H. (See under Hawaiian Sugar Planters' Association Experiment Station.)
- TAIHOKU NORMAL SCHOOL, Taihoku, Formosa (through Moichro Maki): 98 specimens, 38 species, including types of 4 new species, of crustacea from Formosa, collected by the students of the Taihoku Normal School (67519).
- TAUNAY, A. D'E. (See under Museu Paulista.)
- TAYLOR, C. MARSHALL, Port Reading, N. J.: 6 fragments of shipworms taken from jetties near Sea bright, N. J. (68052).
- TAYLOR, DICK. (See under H. G. Clinton.)
- TAYLOR, E. W. B., Haverhill, Mass.: Photogravure, entitled "Birthplace of John G. Whittier, Haverhill, Massachusetts" (68257).
- TAYLOR, Mrs. FRANCES LONG, Athens, Ga.: 17 photographic negatives of original documents relating to the use of ether for anaesthetic purposes, by Dr. Crawford W. Long (67535, deposit).
- TAYLOR, H. L., Washington, D. C.: Spreading adder from the Eastern Branch, near Benning, Washington, D. C. (68173).
- TAYLOR, J., Orange Walk, New River, British Honduras; Lantern fly (67866).
- TAYLOR, JOE D., Bristol, Tenn.: Soapstone pipe found in a mountain crevice 17 miles from Bristol, Tenn. (67863).



- TAYLOR, JOE V., Washington, D. C.: 2 birds, Cooper's hawk, and a red-tailed hawk from Maryland (67394).
- TAYMAN, Miss URSULA, Upper Marlboro, Md.: Fish, 3 salamanders, and 4 insects collected in Tayman Branch (68270).
- TENNESSEE GEOLOGICAL SURVEY, Nashville, Tenn.: Specimen of blastoid from the Mississippian of Sumner County, Tenn. (66968, loan).
- TEREDOCIDE CORPORATION, Seattle, Wash. (through J. E. Pharo, general manager): 3 shipworms from King Cove, Alaska (68470).
- TEXAS, STATE OF, ADJUTANT GENERAL'S DEPARTMENT, Austin, Tex.: Bronze badge of the type awarded by citizens of Galveston, Tex., to members of the National Guard of that State for services during the fire in that city, 1920 (2 specimens) (67123).
- TEXAS, UNIVERSITY OF, Austin, Tex. (through Dr. E. H. Sellards): 13 specimens, 3 species, of Pleistocene mollusks from Red River Valley, Wichita County, Tex. (67057).
- THARP, B. C., University of Texas, Austin, Tex.: 426 plants from Texas (67114, 67675); 10 plants (68184).
- THAXTER, Dr. ROLAND, Cambridge, Mass.: 4 beetles from Sumatra (67737).
- THOMAS, Mrs. ARTEMESIA H. (through Miss Edith Louise Grosvenor, Washington, D. C.): Double-woven, blue and white, wool and cotton coverlet woven by S. Butterfield, New Hartford, Oneida County, N. Y., for Mrs. Thomas's mother (67010).
- THOMAS, R. K., Navajo, Ariz.: Unio shells from the Triassic of Arizona (67817).
- THOMPSON, Osborne M., Key West, Fla.: Parasitic wasp (a cosmopolitan parasite of cockroach eggs) (68401).
- THOMPSON, Prof W. P., University of Saskatchewan, Saskatoon, Saskatchewan, Canada: Plant from Saskatchewan (66997).
- THORNE, HAROLD C., Washington, D. C.: Skin and skull of a flying squirrel (67294).
- TIMBERLAKE, P. H. (See under Hawaiian Sugar Planters' Association Experiment Station.)
- TIN DECORATING CO. OF BALTIMORE, Baltimore, Md.: 5 decorated tin boxes, examples of printing on tin by lithography (68318).
- TOBLER & CO., New York City: 3 specimens of Dufour silk bolting cloth (67091).
- TOLMAN, RUEL P., U. S. National Museum: Lithographic plate with drawing and 2 prints therefrom (67495).
- TOMPKINS KIEL MARBLE CO., New York City: Slab of Biesanz American travertine and 1 of Batesville marble (68496).
- TONDUZ, Señor DON ADOLFO. (See under Guatemala, Direccion General de Agricultura.)
- TOPPING, D. LE ROY, Treasury Bureau, Manila, P. I.: 47 Philippine ferns (66914).
- TORONTO, UNIVERSITY OF, Biological Department, Toronto, Canada (through A. H. Leim): 11 specimens, 2 species, of mollusks and a collection of amphipods (68133).
- TORONTO, ROYAL ONTARIO MUSEUM OF PALEONTOLOGY, Canada: 2 exhibition slabs of fossil leaves from the Upper Cretaceous of Alberta, Canada (67703).
- TOTHILL, JOHN. (See under Max Ruhmann.)
- TOWNSEND, T. G., New York City: Collection of shipworms from San Francisco Bay, Calif., including the type of a new species (67984); shipworms from Long Island, N. Y. (68224).
- TRACEY, Miss E. W., Washington, D. C. (through Lawrence Gichner): 2 Hindu dolls (67403).
- TRAGER, EARL A., Panuco, Vera Cruz, Mexico (through Dr. T. Wayland Vaughan): Small lot of fossils from San Luis Potosi and Vera Cruz, Mexico (67819); 2 small lots

- TRAGER, EARL A.—Continued.  
of fossils from near Panuco, Vera Cruz, Mexico (68092).
- TRAIN, PERCY, Manhattan, Nev. (through H. G. Clinton): Sacrum of a bison (67491).  
(See also under H. G. Clinton.)
- TRANSCONTINENTAL PETROLEUM CO., Tampico, Tamaulipas, Mexico: About 5,000 specimens, 250 species, of Tertiary fossils from 3 kilometers northeast of Santa Cruz, Tehuantepec, Mexico (67343).
- TRANSVAAL MUSEUM, Pretoria, Union of South Africa: 2 mice and 2 bats (alcoholics) (67533).
- TRAUTMANN, Dr. W., Nornberg-Door, Germany: 44 specimens of Hymenoptera, representing 20 species, 8 of which are new to the Museum collections (67437).
- TREFREN, LEO J., Nogales, Ariz. (through Francis J. Dyer): 2 specimens of cacti (67083).
- TRENCHARD, EDWARD, West Islip, Long Island, N. Y.: Personal relics of Capt. Edward Trenchard, U. S. Navy (1784-1824), Rear Admiral Stephen Decatur Trenchard, U. S. Navy (1818-1883), and decorations, badges, and certificates owned by Edward Trenchard; also a snuffbox owned by Mayor John Barclay, of Philadelphia, Pa., in 1791 (70 specimens) (68432, loan).
- TRINIDAD DEPARTMENT OF AGRICULTURE, St. Clair Experiment Station, Port-of-Spain: 2 living cacti, collected in Grenada (67449).
- TRUITT, R. V., University of Maryland, College Park, Md.: Mollusk (young) (67647); 2 marine mollusks from a new cut 15 miles north of Sinepuxent Bay, Md. (67475).  
(See also under B. A. Bean.)
- TSANG, V. S., Biology Department, Soochow University, Soochow, China: 29 specimens of fresh-water shrimps collected by the donor (67966).
- TUCKERMAN, W. R. (See under Charles F. Abercrombie Miller).
- TWITCHELL, A. H., Flat, Alaska: 3 boxes of fossil bones from Alaska (67824).
- ULKE, TRUS, Washington, D. C.: 3 specimens, 2 species, of mollusks and a plant, from British Columbia (67002; 67009); 2 plants from Glacier Park, Mont. (67051); 3 plants from the vicinity of Washington, D. C. (67648, 67710); plant from Virginia (68008).
- UNION OF SOUTH AFRICA, GEOLOGICAL SURVEY OF, Pretoria: 20 specimens, including crocidolite, amosite, and chrysotile, from South Africa (66872, exchange).
- UNION SULPHUR CO., THE, New York City: 4 transparencies showing typical stages in the mining of sulphur in Louisiana by the Frasch process (68156).
- U. S. COMMISSION OF FINE ARTS.  
(See under Belgian, British, Italian, and Portuguese Governments.)
- UNIVERSITETETS BOTANISKE MUSEUM, Copenhagen, Denmark: 1,850 plants (68405, exchange).
- UNIVERSITY PRESS, THE, Cambridge, Mass. (through Sidney A. Kimber): A booklet entitled "Stephen Daye and His Successors, 1639-1921," a very fine example of printing (67453).
- URBAN, Dr. I. (See under Botanischer Garten und Museum.)
- URBANA GRAVEL CO., Urbana, Tex. (through D. M. Filler, superintendent): Fragments of a human skeleton (68028).
- URITA, T., Kagosima Second Middle School, Kagosima, Japan: Crustaceans representing 13 species from Kagosima, Japan, and vicinity (67144).
- UTAH AGRICULTURAL COLLEGE, Logan, Utah (through Herbert J. Pack): 8 moths and 3 nymphs of grasshoppers (66860, 66978, 67044); (through G. M. King) 2 parasitic wasps (67712); 8 grasshoppers (67404).

- UTAH, STATE OF, ADJUTANT GENERAL'S DEPARTMENT, Salt Lake City, Utah: Engraved certificate in duplicate of the type issued by the State of Utah to citizens of that State for service with the military and naval forces of the United States during the World War (67137).
- VAIL, FLOYD, New York City: 6 pictorial photographs (67200); 50 pictorial photographs (67585, loan).
- VAN CLEAVE, Dr. H. J., University of Illinois, Urbana, Ill.: Type and 8 paratypes of a new species of trematode (67458).
- VAN DENBURGH, J. (See under California Academy of Sciences.)
- VANDER, EDWARD H., Washington, D. C.: Gold "pair-case" English watch, gold chain, key, and charm attached (68098, loan).
- VAN DUZEE, MILLARD C., Buffalo, N. Y.: Fly (67434, exchange); 6 flies, 3 of which are paratypes of a new species (67555).
- VAN HYNING, T., Florida State Museum, Gainesville, Fla.: 15 mollusks from Seminole Run, Lake County, Fla. (67032).  
(See also under Florida State Museum.)
- VAUGHAN, Dr. T. WAYLAND. (See under E. T. Dumble, H. D. Easton, W. R. Forrest, Dr. O. B. Hopkins, Dr. A. G. Mayor, Dr. Mario Sanchez Roig, Earl A. Trager, and Henry Woods.)
- VAUPEL, Dr. F., Botanischer Garten und Museum, Berlin-Dahlem, Germany: 7 plants, *Cereus* (68194, exchange).
- VEATCH, CHARLES, Kansas City, Mo.: Mollusk from Firmans Point, Calif. (67063); 2 mollusks (68485).
- VEIT, J. J., U. S. National Museum: Screech owl from Washington, D. C. (67699).
- VENABLE, Mrs. MORTON L., Washington, D. C.: Doll, doll's bedstead, silver finger shield, and netting needle (67960).
- VERMONT, STATE OF, ADJUTANT GENERAL'S OFFICE, Montpelier, Vt.: Engraved certificate of the type issued by the State of Vermont to residents of the State for service during the World War (67089).
- VERRILL, Prof. A. E., Westville, Conn.: 27 species of Pleistocene fossils from the vicinity of Paita, Peru, collected by Maj. G. E. Verrill (67700).
- VIERECK, H. L., Bureau of Biological Survey, U. S. Department of Agriculture, Washington, D. C.: 3 bees from French Kongo, West Africa (66951).
- VILLENEUVE, Dr. J., Rambouillet, France: 16 European flies (67895, exchange).
- VINAL, Prof. Wm. G., Rhode Island College of Education, Providence, R. I.: 19 specimens, 1 species, of marine mollusks from Wellfleet, Cape Cod, Mass. (68116).
- VIOSCA, PERCY, JR., Southern Biological Supply Co., New Orleans, La.: Toads from Vicksburg, Miss. (68403).
- VISEL, Miss GLADYS, U. S. National Museum: 2 female specimens of parasitic copepods collected by the donor (67949).
- VONSEN, M., Petaluma, Calif.: 4 specimens of minerals (66926, exchange).
- WADE, BRUCE (through J. B. Reeside, jr): 10 specimens of fossils from the Isthmus of Tehuantepec, Mexico (68163).
- WAKEFIELD, E. A., Prince Rupert, British Columbia: A large anomuran crab caught by Bert Arthur Hansen, of Prince Rupert, British Columbia, off the southwest coast of Cape St. James, Queen Charlotte Inlet (67945).
- WALCOTT, Dr. CHARLES D., Smithsonian Institution: 8 fashion plates of the nineteenth century collected by the donor when a boy (67773); Taft College pin, 1913; Phi Beta Kappa Key, 1917; Intra-Collegiate Athletic Association medal and

## WALCOTT, Dr. CHARLES D.—Con.

identification tag, 1917, all owned by Lieut. Benjamin Stuart Walcott (67976); reversible pictorial toy showing portraits of Queen Victoria and Prince Albert, purchased in England in 1848 (68032); old English silver watch (68090).

(See also under Gold Star Fathers' Association of Illinois.)

WALCOTT, Mrs. CHARLES D., Washington, D. C.: 42 plants from Alberta and British Columbia (67288); examples of oolitic limestone from the Middle Cambrian, Ptarmigan Lake, Alberta, Canada, collected by the donor (67831); 9 cut gems of sodalite from the Ice River Valley, near Field, British Columbia (gift), and a cut stone of rhodonite, mounted as a charm (68002, loan); specimen of pine from South Carolina (68074).

WALKER MUSEUM, UNIVERSITY OF CHICAGO, Chicago, Ill.: Cervical and dorsal vertebrae of a Permian reptile (66950, exchange).

WALKER, R. S., Chattanooga, Tenn.: Specimens of galls (68146); (through O. M. Freeman, Bureau of Plant Industry, U. S. Department of Agriculture, Washington, D. C.): plant (68313).

WALKER, Mrs. R. W., Chula Vista, Calif.: 2 plants from California (68093).

WALKER, WENDELL C., Chattanooga, Tenn.: Galls on a twig of water oak (68101).

WALTON, C., Peterhead, South Australia: 37 species of marine shells; 93 specimens, 22 species, of marine mollusks; 210 specimens, 42 species, of marine shells, 1 sertularian, and 1 seaweed; 208 specimens, 39 species, of marine mollusks, all from Australia (67588, 67994, 68170, 68234).

WALZ, HERMAN J. (See under Anheuser-Busch (Inc.).)

WANAMAKER, JOHN, Philadelphia, Pa.: 2 bronze copies of the medal issued by the firm of John Wanamaker in 1921 in commemoration of

## WANAMAKER, JOHN—Continued.

the sixtieth anniversary of the establishment of the firm (68299).

## WAR DEPARTMENT:

*Adjutant General, Office of the:*

An illuminated acknowledgment from the Italian Government for the congressional medal of honor bestowed by act of Congress, approved October 12, 1921, upon the unknown unidentified Italian soldier buried at Rome, Italy, January 18, 1922, together with decorative leather case (68525).

*Air Service:* De Haviland-4 airplane flown from New York City to Alaska and return in 1920 by Lieut. St. Clair Streett, U. S. Air Service (67887, loan).

*Army War College:* Maps showing the location of the battle fronts in northern France at various periods during the World War (6 specimens) (68477).

*Ordnance, Office of the Chief of:* 12 specimens showing steps in the manufacture of the walnut stock for U. S. service rifle, Model 1903, mounted on display board (67618, loan).

*Quartermaster General, Office of:* World War service flag of the Reformed Presbyterian Church of North America (67387).

*Public Buildings and Grounds* (through Lieut. Col. C. O. Sherrill, U. S. Army, officer in charge of): National flags of the United States, Great Britain, France, Italy, Japan, Belgium, the Netherlands, China, and Portugal, which were installed in Memorial Continental Hall during the deliberations of the Conference on the Limitation of Armament, 1921-1922 (9 specimens) (67965, deposit).

WAR OF 1812, THE GENERAL SOCIETY OF THE (through Dr. Marcus Benjamin, U. S. National Museum): Engraved certificate of the type awarded by the General Society of

- WAR OF 1812, THE GENERAL SOCIETY OF THE—Continued.  
the War of 1812 to members of the society in recognition of services rendered in the World War (67922).
- WARD, Mrs. HERBERT, London, England: The Herbert Ward African Collection (67312).
- WARD'S NATURAL SCIENCE ESTABLISHMENT, Rochester, N. Y.: 4 specimens of datolites from Westfield, Mass. (66897); examples of 3 meteorites, namely, Arlington, Minn.; Rosario, Honduras; and Chantonnay, France (67161). Exchange.
- WARNER, Maj. MURRAY (through his widow, Mrs. Gertrude Bass Warner, Eugene, Oreg.): Ornamented bronze gilt Buddha from the imperial palace of Pekin, China (66802); 42 autochromes of the Panama-Pacific Exposition at San Francisco (67310); 10 Chinese imperial robes (68005).
- WARREN NOVELTY CO., Warren, Vt. (through U. S. Department of Agriculture, Forest Service, Washington, D. C.): A hard-maple candle pin showing irregular wood turning (68505).
- WARREN, S. HAZZLEDINE. (See under Graig-Lwyd Excavation Committee.)
- WASHBURN, CHESTER W., New York City: A Jurassic fossil from Chile (67407).
- WASHINGTON, Dr. HENRY S., Carnegie Institution of Washington, Washington, D. C.: Marble portrait medallion of George Washington, by an Italian artist (67684, loan); specimen of garnet (andradite) from British Columbia (68143).  
(See also under Charles E. Ivers.)
- WATSON, Dr. THOMAS L. (See under Prof. Donald W. Davis.)
- WEATHERBY, C. A., East Hartford, Conn.: 97 plants from New England and a fern from New Jersey (66865, 67777).
- WEBER, C. M.: 50 specimens of Philippine mollusks (68469).
- WEGNER, Dr. R. N., Frankfort-on-the-Main, Germany: 2 skulls of seals from Holstein, Germany (67853, exchange).
- WEINGART, WILHELM, Georghal-in-Thuringen, Germany: About 40 plants, chiefly cacti (67342).
- WELLCOME, HENRY S., London, England: British farthing coined in 1919 and 7 early British copper coins (67530, 67630).
- WELLS, Dr. B. W., North Carolina State College of Agriculture, Department of Botany, Raleigh, N. C.: Fragments of the type and 2 paratypes of gall wasp (67864); 2 "type" galls (67918).
- WERCKLE, Dr. C., Botica Francesa, San Jose, Costa Rica: 2 specimens of cacti from Costa Rica (67365).
- WEST COAST ENGRAVING CO., THE, Portland, Oreg.: 5 specimens of reengraving of half tones (67571).
- WETMORE, Dr. A., Bureau of Biological Survey, U. S. Department of Agriculture, Washington, D. C.: Skeleton of guinea fowl (68388).
- WHEELER, B. F., Vincennes, Ind.: 17 baroque pearls from the Wabash River, Ind. (67146); 4 pearls from the White River, Ind., and a piece of a fresh-water mussel shell from near Rochester, Ill. (67472).
- WHERRY, Dr. EDGAR T., Bureau of Chemistry, U. S. Department of Agriculture, Washington, D. C.: 2 plants from Georgia (68140).  
(See also under J. G. Manchester.)
- WHITALL TATUM CO., Philadelphia, Pa.: 20 pieces of pharmaceutical apparatus (67053).
- WHITE, Mrs. E. C., U. S. National Museum: Plant from Devonshire, England, collected by Mrs. Thomas Walters, Chagford, Devonshire (67221); 4 plants from Pennsylvania (67782).
- WHITE, Mrs. JOHN JAY, New York, City: Collection of ethnological specimens of British East Africa (67570, deposit).

- WHITE, NETTIE LOVISA (through Mrs. Charles Keeler, administratrix, Berkeley, Calif.): Specimens of pottery, brasses, and textiles from Europe and Asia (67916, bequest).
- WHITFORD, Prof. H. N. (See under Yale University, School of Forestry).
- WHITMORE, CLIFF, Overton, Nev.: Specimen of the mineral jarosite from Nevada (68330).
- WIGGLESWORTH & CO (Ltd.), London, England: 14 samples of commercial grades of foreign cordage fibers (68057).
- WILDEMAN, Dr. E. DE. (See under Jardin Botanique de l'État.)
- WILL CORPORATION, THE, Rochester, N. Y.: 11 specimens of pharmaceutical apparatus (67419).
- WILLETT, G., Craig, Alaska: 7 specimens, 2 species, of marine mollusks from Wrangell and Craig, Alaska (68452).
- WILLIAMSON, E. B., Bluffton, Ind.: 17 dragonflies from Central and South America (66829); 9 dragonflies, consisting of 5 males and 2 females, and 2 males of a new species (67182); specimen of new species of damselfly (67711).
- WILLIAMSON, JESSE H., Bluffton, Ind.: 159 dragonflies from Florida and South Carolina (66975).
- WILLIAMSON, T. N., Graham, Va.: Duck (67488).
- WILMER, Col. L. WORTHINGTON, Lothian House, Ryde, Isle of Wight, England: Collection of Lower Greensand fossils (66889); a miscellaneous collection including (1) Lower Greensand invertebrate fossils, (2) recent mollusks, (3) stamps (67512).
- WILMER, Mrs. PERE, Faulkner, Md.: 14 vertebrae of a cetacean (66999).
- WILSON LABORATORIES, THE, Chicago, Ill.: 33 specimens of ligatures and sutures and 11 photographs illustrating the manufacture of these products from catgut (68108).
- WINCHESTER, D. E., New York City (through Dr. T. W. Stanton): 9 specimens of fossils, including ostracods and fish, from Brazil (67688).
- WINCHESTER REPEATING ARMS CO., New Haven, Conn. (through American Walnut Manufacturers' Association, Chicago, Ill.): 7 specimens showing the manufacture of rifle stocks and fore ends from American walnut (66849).
- WINONA STATE TEACHERS' COLLEGE, Winona, Minn. (through John M. Holzinger): 25 specimens of mollusks from the upper Mississippi (67903).
- WINTERS, FRED. E., Santa Barbara, Calif.: 5 water beetles (68168, exchange).
- WISCONSIN ACADEMY OF SCIENCES, ARTS, AND LETTERS, Madison, Wis.: Bronze plaque issued in 1920 commemorating the fiftieth anniversary of the founding of the Wisconsin Academy of Sciences, Arts, and Letters, 1870 (67175).
- WOLF, Rev. W., St. Bernard College, St. Bernard, Ala.: 2 plants (66857, exchange).
- WOOD, EDGAR J., Freeport, N. Y.: Worm dug from sand bars at low tide at Great South Bay, Freeport, L. I. (67409).
- WOODAMS, MILTON E., Rochester, N. Y.: 48 plants from New York State (67140).
- WOODBURY, Dr. C. J. H. (See under National Association of Cotton Manufacturers.)
- WOODMAN, HENRY, Bristol, Tenn.: Human skull and flint arrow point found in a mountain crevice 17 miles from Bristol, Tenn., and 20 pieces of shale containing graptolites from near Bristol, Tenn. (67862, 68456).
- WOOD-MOSAIC CO. (INC.), New Albany, Ind. (through American Walnut Manufacturers' Association, Chicago, Ill.): 3 specimens showing 3

## WOOD-MOSAIC CO. (INC.)—Con.

designs of parquetry flooring from American walnut (67616).

WOODRUFF, F. M. (See under R. W. Shufeldt.)

WOODS, HENRY, Sedgewick Museum, Cambridge, England (through Dr. T. Wayland Vaughan): 24 specimens of fossil corals from Peru (68239).

WOODWORTH, Prof. H. E. (See under Philippine Islands, Government of, University of the Philippines.)

WORCH, Hugo, Washington, D. C.: German square piano of 1810, the first instrument with overstrung scale, Circassian walnut case (66832); square piano made by John Sellers, Alexandria, D. C., about 1810, and an upright piano made by Robert Wornum, London, containing his patent action, date about 1810 (67012); gold double-bank harpsichord made by Pleyel (67337).

WORLD, THE, New York City (through Arthur Benington): A photograph sent by wireless from Rome, Italy, to Bar Barbor, Me., by the Korn method, June 7, 1922, and published in the New York World June 11, 1922 (68497).

WRIGHT, B. HART, Penn Yan, N. Y.: 422 lots, about 12,000 specimens, of land, fresh-water and marine mollusks, and about 5,000 Devonian fossil mollusks from various localities (67328).

WYND, F. L., Eugene, Oreg.: 10 plants from Fall Creek, Oreg. (67035).

WYOMING, STATE OF, ADJUTANT GENERAL'S OFFICE, Cheyenne, Wyo.: Bronze medal of the type issued by the State of Wyoming for service during the World War (2 specimens) (67054).

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